The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 114, No. 11 — COPYRIGHT, 1940, BY AMERICAN MEDICAL ASSOCIATION CHICAGO, ILLINOIS — MARCH 16, 1940

STUDIES ON THE MECHANISM OF THE ACTION OF SULFANILAMIDE

IV. THE INFLUENCE OF PROTEOLYTIC PRODUCTS ON THE EFFECTIVENESS OF SULFANILAMIDE

JOHN S. LOCKWOOD, M.D.
AND
HELEN M. LYNCH, M.A.
PHILADELPHIA

Progress in the synthesis of effective chemotherapeutic agents must await a more thorough understanding of the essential mechanism by which sulfanilamide and related compounds produce their effects on bacteria and the lesions associated with infection.

It was because of this that we began three years ago to study certain of the fundamental factors governing the mode of action of sulfanilamide. The data have been obtained from clinical and experimental investigations, since we believe that the problem can be satisfactorily approached only by a concerted and coordinated study carried on by the same group.

An important conclusion reached during a study of 250 cases of human hemolytic streptococcus infections [1] was the fact that sulfanilamide produced its most important effects on diffuse lesions characterized by maximal tissue invasion and minimal tissue destruction. Subsequent investigations have impressed on us the importance of proteolytic products as a rich source of the substances which bacteria may readily utilize in maintaining their biologic activity. These products of protein hydrolysis have been shown by Bradley [2] to consist of proteoses, peptones, polypeptides and amino acids.

Experiments concerned with the effect of sulfanilamide on experimental hemolytic streptococcus meningitis in the albino rat [3] confirmed the clinical observations we had previously made that the drug attacked primarily the invasive component of the infection; in other words, the drug destroyed the bacteria which were multiplying in tissues which were relatively unaltered.

We later reported experiments [4] in which we were able to confirm the observations of Colebrook and other workers [5] on the ability of sulfanilamide in whole human blood to destroy limited numbers of hemolytic streptococci. We observed, however, that phagocytosis was secondary to the humoral effects of the drug. The evidence for this observation, which was not in agreement with that reported by other investigators, strongly indicated that cell-free serum containing sulfanilamide was as bacteriostatic for hemolytic streptococci as whole blood from the same donor. In the course of these studies we recognized the profound importance for bacterial growth in serum of minute amounts of peptone which had been carried over with the bacterial inoculum.

The observations that amounts of peptone as small as 0.01 mg. per cubic centimeter of culture medium had a definite effect on the population curve, with or without sulfanilamide, emphasized the practical inaccuracy of most of the experimental work on the bactericidal action of blood and serum. It was apparent that normal human serum, even without sulfanilamide, was not a favorable culture medium for the multiplication of even markedly invasive strains of hemolytic streptococci. On the other hand, the addition of peptone rendered the serum favorable for the propagation of even relatively noninvasive strains of this organism. The effect of sulfanilamide in vitro was only maximal when even small traces of peptone were excluded from the serum. It seemed highly likely that under these circumstances the serum medium was deficient in the readily assimilable nitrogen necessary for biologic activity.

Our data led us to propose as a tentative hypothesis that sulfanilamide interfered with the ability of hemolytic streptococci to utilize protein-split products in serum and that the presence of peptone provided assimilable nitrogen in such excess that sulfanilamide could no longer act with optimal effectiveness. The precise mechanism by which peptone interferes with the action of sulfanilamide is, we believe, necessary for any fundamental understanding of the action of sulfanilamide in vivo.

It must be shown that this same phenomenon accounts for the action of sulfanilamide in other mediums and on other types of bacteria. Moreover, such an explanation, if valid, should apply equally to the action of sulfapyridine. In the present paper we present further data on the role of peptone in influencing the action of sulfanilamide on hemolytic streptococci in

From the Laboratory of Surgical Bacteriology, Harrison Department of Surgical Research, University of Pennsylvania School of Medicine.

1. Lockwood, J. S.; Coburn, A. F., and Stokinger, H. E.: Studies on the Mechanism of the Action of Sulfanilamide: I. The Bearing of the Character of the Lesion on the Effectiveness of the Drug, J. A. M. A. **111**: 2259 (Dec. 17) 1937.

2. Bradley, H. C.: Autolysis and Atrophy, Physiol. Rev. **2**: 415 (July) 1922.

3. Adolph, P. E., and Lockwood, J. S.: Studies in the Mechanism of the Action of Sulfanilamide: II. Sulfanilamide in the Treatment of Experimental Streptococcic Meningitis, Arch. Otolaryng. **27**: 535 (May) 1938.

4. Lockwood, J. S.: Studies on the Mechanism of the Action of Sulfanilamide: III. The Effect of Sulfanilamide in Serum and Blood on Hemolytic Streptococci in Vitro, J. Immunol. **35**: 135 (Sept.) 1938.

5. Colebrook, Leonard; Buttle, G. A. H., and O'Meara, R. A. Q.: The Mode of Action of p-Aminobenzenesulfonamide and Prontosil on Hemolytic Streptococcal Infections, Lancet **2**: 1323 (Dec. 5) 1936. Gay, F. P., and Clark, Ada R.: On the Mode of Action of Sulfanilamide in Experimental Streptococcus Empyema, J. Exper. Med. **68**: 535 (Nov.) 1937. Long, P. H., and Bliss, Eleanor A.: Para-Amino Benzene-Sulfonamide and Its Derivatives: Experimental and Clinical Observations on Their Use in the Treatment of Beta-Hemolytic Streptococcus Infection, J. A. M. A. **108**: 32 (Jan. 2) 1937. Bliss, Eleanor, A., and Long, P. H.: Observations on the Mode of Action of Sulfanilamide, ibid. **109**: 1524 (Nov. 6) 1937.

human serum and show that the same general principles apply in the action of sulfanilamide on Bacillus coli in urine (therapy accounting for Mellon's [6] phenomenon of "potentiation") and in the action of sulfanilamide on pneumococci and staphylococci in human serum. Furthermore, evidence will be presented to show that peptone has a definite inhibiting effect on the action of sulfapyridine on hemolytic streptococci and, to a much smaller extent, on pneumococci.

TECHNIC

Full technical details have been previously published.[4] Briefly, the technic employed in all these experiments was as follows: Fresh serum was obtained from freshly drawn human blood defibrinated with glass beads. One cc. of serum was placed in each of the required number of small test tubes. We obtained organisms by inoculating 5 per cent horse serum-neopeptone water from stock, incubating it overnight and transferring 0.1 cc. to 4 cc. of 20 per cent horse serum-neopeptone water for a final two hours of incubation. This provided us with an inoculum of young, encapsulated organisms in a logarithmic phase of multiplication. This inoculum was obtained by centrifuging the two hour culture and resuspending the bacterial sediment in serum. The desired dilutions of culture were then made in serum. This procedure resulted in the exclusion of essentially all the horse serum and peptone from the original medium.

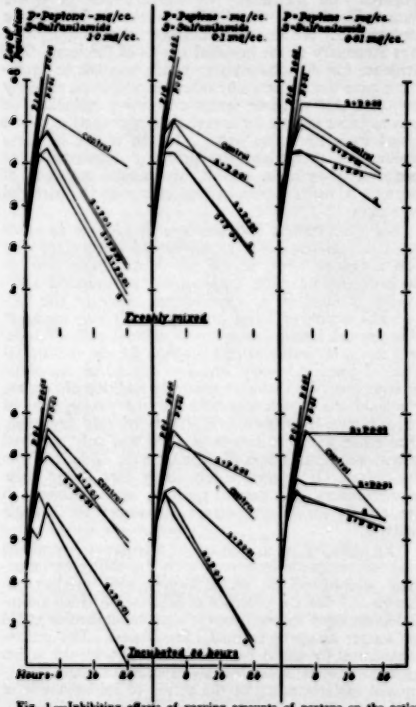


Fig. 1.—Inhibiting effects of varying amounts of peptone on the action of varying concentrations of sulfanilamide (experiment 129).

Solutions of sulfanilamide and sulfapyridine were freshly prepared for each experiment by adding the required amount to physiologic solution of sodium chloride and bringing it to a boil. The routine peptone solution was made from neopeptone (Difco) but in some control experiments the solutions were made with other types of peptone. The results were essentially the same. The reagents were added to the tubes of serum with a calibrated micropipet, and in all cases the total quantities of water and sodium chloride were accurately controlled.

As a rule the ratio of added reagents to serum was of the order of 1 to 10 by volume. The tubes were sealed with wood corks dipped in paraffin and mounted on a slowly rotating drum in the incubator. At the desired intervals the tubes were removed and opened and 0.1 cc. was explanted to 1 cc. of neopeptone water in a Petri dish. Ten cc. of horse blood or horse serum agar was added and mixing was obtained in the usual manner. Plates were read after forty-eight hours, the low power objective of the microscope being used whenever necessary. The figure obtained for an average of a number of fields was multiplied by 3,000 in order to achieve the final estimate of population. In all the figures here presented the determinations are based on the logarithm of the population of the 0.1 cc. explant and do not represent any absolute values for bacterial population. It is obvious that any technic of this sort involves fairly wide variations from experimental error. But in view of the fact that the curves are reduced to gross logarithmic representation the experimental error is insignificant.

INHIBITING EFFECTS OF VARYING AMOUNTS OF PEPTONE ON THE ACTION OF VARYING CONCENTRATIONS OF SULFANILAMIDE

Chart 1 shows the population curves obtained with different concentrations of sulfanilamide balanced against different concentrations of peptone. In the upper group peptone and sulfanilamide were added to the test serum immediately after being mixed. In the lower group the sulfanilamide and peptone were incubated together for twenty-four hours before the organisms were added and incubation was started. It was hoped thus to disclose any possible role that might be played by the time factor required for a possible linkage or chemical union between sulfanilamide and peptone.

The following points deserve especial mention:

1. The population curve is raised by decreasing the concentration of sulfanilamide and lowered by decreasing the concentration of peptone. The population curves tend in general to arrange themselves in logical sequence. However, some variations are present, the most conspicuous being the positions of the curves resulting from the addition of 0.1 mg. of peptone per cubic centimeter. The occasional variation from the expected sequence is not unusual in experiments of this type. They are the result of the inherent error of the method.

2. The addition of peptone to sulfanilamide-free control serums produces a marked increase in the rapidity of outgrowth.

6. Mellon, R. R.; Gross, Paul, and Cooper, F. B.: Sulfanilamide Therapy of Bacterial Infections with Special Reference to Diseases Caused by Hemolytic Streptococci, Pneumococci, Meningococci and Gonococci, Springfield, Ill., C. C. Thomas, Publisher, 1938.

3. It is possible through the use of a hundred times as much sulfanilamide as peptone to produce bacteriostasis of an order similar to that obtained in peptone-free serum containing sulfanilamide, even though this small quantity of peptone has a markedly stimulating action on the growth of streptococci in sulfanilamide-free serum (chart 1, upper left corner).

4. There are no significant differences between the groups in which peptone and sulfanilamide were freshly mixed and those in which these substances were incubated for twenty-four hours.

EFFECT OF SULFANILAMIDE ON BACILLUS COLI IN URINE

Mellon and his associates [6] have reported data from experiments on the action of sulfanilamide on Bacillus coli in urine. They observed that colon bacilli grown in urine and added, after dilution in urine, to urine containing sulfanilamide were markedly restricted in their growth. If, however, they were diluted in broth

The Effect of Sulfanilamide on Bacillus Coli in Urine (Experiment 112; Mellon's Phenomena of "Potentiation" Explained by Peptone Content)

Culture Medium	Diluent	Test Medium	Concentration of Sulfanilamide, Mg./Cc.	Concentration of Peptone, Mg./Cc.	Population of 0.1 Cc. at Start	6 Hrs.	24 Hrs.	72 Hrs.
Urine	Urine	Urine	0	0	25	38,000	∞	∞
Urine	Urine	Urine	0.1	0	22	3,000	8	35
Urine	Urine	Urine	0	20	33	108,000	∞	∞
Urine	Urine	Urine	0.1	20	36	38,000	∞	∞
Broth	Urine	Urine	0	0	11	21,000	∞	∞
				? adsorbed				
Broth	Urine	Urine	0.1	0	15	480	536	∞
				? adsorbed				
Broth	Broth	Urine	0	0.1	22	12,000	∞	∞
Broth	Broth	Urine	0.1	0.1	6	400	27,000	∞
Broth	Broth	Urine	0	1.0	15	15,000	∞	∞
Broth	Broth	Urine	0.1	1.0	11	3,000	∞	∞

before being added to the sulfanilamide test urine the inhibition of growth did not take place. In order to account for these variations, Mellon advanced the theory of "potentiation."

According to this concept the organisms were acted on during their phase of growth in urine in such a way as to be rendered susceptible to the action of sulfanilamide in the test urine and in such a way that the "potentiation" of two effects was necessary in order to achieve bacteriostasis of colon bacilli in vitro with sulfanilamide.

The data of Mellon and his associates constitute, we believe, an important confirmation of the theory of protein-split products as inhibitors of the action of sulfanilamide. We have repeated Mellon's experiments, using his own technic. The results are shown in the accompanying table. In the first pair the organisms were grown in urine, diluted in urine and tested in urine with and without sulfanilamide. Of course, no added peptone was present. Under these conditions active growth appeared in the control and marked inhibition, just short of sterilization, took place with sulfanilamide in a concentration of 10 mg. per hundred cubic centimeters.

In the second pair the organisms were prepared in identical fashion except for the addition of a quantity of peptone, so that the final concentration was approximately 20 mg. per cubic centimeter. With the addition of peptone constituting the only difference, no inhibition by sulfanilamide occurred.

In the third pair the organisms were grown in broth, were diluted in urine so as to exclude all except possible traces of adsorbed peptone and were then added to urine with and without sulfanilamide. Under these conditions a definite bacteriostasis took place during the first twenty-four hours, indicating conditions closely resembling those in the first pair; final outgrowth in forty-eight hours did, however, take place.

In the fourth pair the organisms were grown in broth, diluted in broth and added to urine with and without sulfanilamide, after preliminary centrifugation of the broth suspension of diluted bacteria and resuspension of the bacteria in urine. This excluded all the culture medium except for one drop left at the bottom of the centrifuge tube with the bacterial residue. With this preparation there was carried over about 0.1 mg. of peptone per cubic centimeter. Some bacteriostasis resulted.

In the last pair the centrifugation and resuspension were omitted and the result was complete elimination of any inhibition of the bacteriostatic action of sulfanilamide, offering a striking contrast to the preceding experiments.

We believe that Mellon is correct in pointing out that normal urine is not a highly favorable culture medium for Bacillus coli. However, it becomes a highly favorable medium if small amounts of peptone or of products of tissue breakdown are present, either in the test tube or in the body. Ballenger and his associates [7] have recently confirmed the observation that conditions in the urinary tract which might lead to an increased production of products of tissue breakdown may account for failures of sulfanilamide therapy.

In view of the increasing attention which is being paid to the possible action of sulfanilamide as an anticatalase, it is of interest to call attention to the fact that Bacillus coli is generally considered to be highly resistant to the lethal effects of hydrogen peroxide. We merely wish to raise the question whether the latter theory of sulfanilamide action is adequate to explain the action of sulfanilamide on Bacillus coli in urine.

EFFECT OF SULFANILAMIDE ON STAPHYLOCOCCUS AUREUS: INHIBITING ACTION OF PEPTONE

It has been generally agreed that sulfanilamide possesses little effectiveness in vitro against staphylococci. It is important to point out, however, that the failure to recognize such an effect in in vitro experiments has been due largely to the neglect of the importance of the traces of peptone which would ordinarily be present in mediums in the experiments that have been made. Chart 2 shows the population curves resulting from the inoculation of small numbers of staphylococci into human serum containing varying amounts of sulfanilamide and peptone. The curve to the left indicates that complete inhibition of growth may occur during the first twenty-four hours of incubation if peptone is entirely excluded from the mediums. The presence of as little as from 0.01 to 0.1 mg. of peptone to a large extent overcomes the bacteriostatic effect of even 1 mg. per cubic centimeter (1:1,000) of sulfanilamide. The middle curve shows that sulfanilamide in concentrations of 0.1 mg. per cubic centimeter (1:10,000) is almost completely ineffective in restraining the outgrowth of the same inoculum of staphylococci. The curves at the

7. Ballenger, E. G.; Elder, O. F.; McDonald, H. P., and Coleman, R. C.: Failures in the Treatment of Urinary Tract Infections with Sulfanilamide, J. A. M. A. 112:1569 (April 22) 1939.

right in chart 2 compare the efficacy of sulfapyridine and sulfanilamide in concentrations of 0.1 mg. per cubic centimeter (1 : 10,000).

In these data sulfapyridine is definitely more effective than sulfanilamide in limiting the outgrowth of staphylococci after the first three hours and is slightly more effective in overcoming the growth stimulating effects of peptone. It is our opinion that the failure

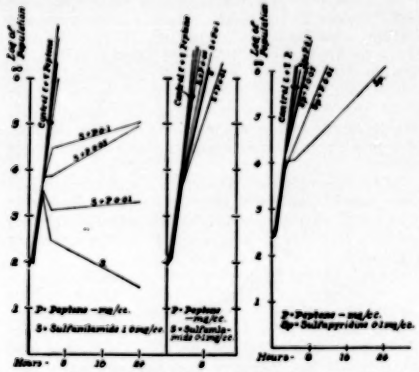


Fig. 2.—Effect of sulfanilamide on Staphylococcus aureus; inhibiting action of peptone (experiment 132 [Huff]).

of sulfanilamide to influence the course of ordinary staphylococcic infections is the result of the massive tissue injury usually associated with this type of infection. Producing as it often does a local abscess, there is initiated a profound increase in protein catabolism as demonstrated by Daft, Robscheit-Robbins and Whipple.[8] Large amounts of protein-split products such as are present in protein intoxication may, we believe, simulate our experiments in which large amounts of peptone were added. Furthermore, staphylococci grown in serum tend to be resistant to adequate concentrations of sulfanilamide after the action of staphylococcus enzymes has so altered the medium as to render it favorable for staphylococcus growth.

COMPARISON OF THE EFFECTS OF PEPTONE ON THE ACTIONS OF SULFANILAMIDE AND SULFAPYRIDINE ON STREPTOCOCCI

In chart 3 is presented the comparison of the actions of sulfanilamide and sulfapyridine on the population curves of hemolytic streptococci in human serum with and without peptone. When peptone was excluded, the drugs induced similar curves. Both compounds produced sterilization at twenty-four hours, and the curves can almost be superimposed. This is in agreement with data obtained in numerous other experiments, namely that sulfapyridine in vitro is as effective against the hemolytic streptococcus as sulfanilamide itself but in general no more effective. It can be seen from the population curves resulting from the addition of varying concentrations of peptone that the effect of protein-split products is essentially the same for both drugs and that, as far as the streptococcus is concerned, sulfapyridine is no more able to overcome the inhibiting action of peptone than is sulfanilamide.

8. Daft, F. S.; Robscheit-Robbins, Frieda S., and Whipple, G. H.: Plasma Protein Given by Vein and Its Influence upon Body Metabolism, J. Biol. Chem. **123**: 87 (March) 1938.

COMPARATIVE EFFECTS OF SULFANILAMIDE AND SULFAPYRIDINE ON PNEUMOCOCCUS TYPE III WITH AND WITHOUT PEPTONE

Chart 4 shows the population curves of pneumococcus type III obtained by the addition of small amounts of sulfanilamide and sulfapyridine to small inoculums of the organisms in human serum. In the one group of experiments peptone was not present in the mediums and in the other 1 mg. of peptone per cubic centimeter was added. The growth in the peptone-free group was not strikingly active during the first five hours, but finally the unfavorable conditions for growth were overcome and rapid multiplication took place. The addition of sulfanilamide so that the concentration became 1 : 40,000 produced a relatively high degree of bacteriostasis, and at twenty-four hours the population was about 30,000. With the same concentration of sulfapyridine only very few colonies appeared on the plate, and when the twenty-four hour serum medium was transferred to broth no growth occurred, indicating that sterilization had at this time become complete. A similar difference was noted with concentrations of 1 : 10,000 of the two drugs. Chemotherapeutic activities in vitro were consistent with the differences which are known to exist in the ability of these two drugs to attack the pneumococcus both experimentally and clinically in vivo.

The curves on the right, showing experiments in which 1 mg. of peptone per cubic centimeter was added, show that the higher concentration of sulfapyridine, namely 1 : 10,000, is to some extent able to overcome the growth stimulating effect of the peptone and to

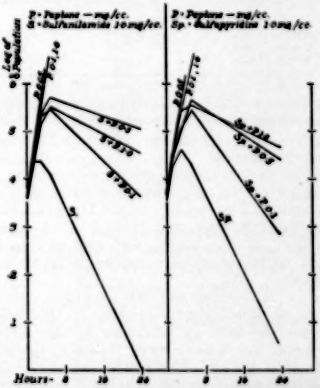


Fig. 3.—Comparison of the actions of sulfanilamide and sulfapyridine on hemolytic streptococci in serum, with variation in concentration of peptone (experiment 104).

restrict the outgrowth of the pneumococci. With a similar concentration of sulfanilamide very active outgrowth of the pneumococcus took place. This difference between the two drugs in overcoming the growth stimulating properties of peptone may account for the superiority of sulfapyridine in treating pneumococcic infections. It must remain, however, for further study to determine whether or not this is an important factor in explaining the difference in the effectiveness of the two drugs.

THE ROLE OF PEPTONE IN CONDITIONING THE ACTION OF SULFAPYRIDINE ON PNEUMOCOCCUS TYPE III IN SERUM

In chart 5 data are given which further analyze the inhibiting effects of peptone on the action of sulfapyridine on type III pneumococci. In the experiment shown in chart 4 the use of sulfapyridine 0.1 mg. per cubic centimeter made it possible to overcome completely the growth stimulating effect of 0.01 mg. per

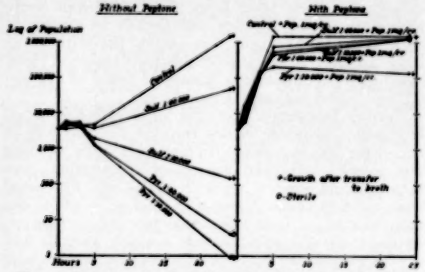


Fig. 4.—Comparison of sulfanilamide and sulfapyridine in pneumococcus type III in normal serum, with and without peptone.

cubic centimeter of peptone. That this concentration of peptone was stimulating in its effect on the pneumococcus is shown in the studies made in the control group, in which the rise in population with 0.01 mg. of peptone per cubic centimeter was far more rapid than was true in the peptone-free mediums. Furthermore, in this group the population curves tended to rise proportionately as the concentration of peptone was increased.

It is interesting to note the progressive trend of the curves to move upward, shifting from left to right on these charts, owing to the progressive diminishing concentrations of sulfapyridine. Sulfapyridine in a concentration of 0.01 mg. per cubic centimeter had but little effect on limiting growth even in the absence of peptone. It seems possible to conclude from these experiments that the growth stimulating effect of peptone may be overcome by the presence of a hundred times as much sulfapyridine. This concentration of sulfapyridine is, of course, quite unpractical in view of the low solubility of the drug, unless one is to use the more soluble sodium salt.

COMMENT

In a previous publication [4] reference was made to the work of Bainbridge, who in 1911 showed that certain bacteria were unable to utilize the complex proteins of egg albumin and blood serum as a source of nitrogen and that when inoculums of the organisms were added to mediums containing these proteins alone the organisms died out. However, when peptones were available in these same mediums bacterial growth was rapidly initiated and, once initiated, continued normally according to a characteristic growth curve. It appeared, therefore, that the bacterium gradually acquired the capacity finally to utilize the more complex protein substrate.

Normal human serum does contain minute quantities of free amino acids and other derivatives of protein catabolism. Since the organisms that are known to be susceptible to sulfanilamide are not in general actively proteolytic, it is reasonable to suppose that when they are inoculated into blood serum they depend at least in part on obtaining assimilable nitrogen for protein metabolism from previously hydrolyzed protein. Since the concentration of such free amino nitrogen is rarely high it is obvious that the addition of very small traces of peptone may markedly alter the amount of assimilable nitrogen and thus significantly improve the status of the serum as a culture medium for nonproteolytic organisms, such as the hemolytic streptococcus. The fact that effective sulfanilamide action depends on the exclusion of added peptone suggests immediately that the drug must act in some way through interference with the ability of the bacteria to utilize the traces of assimilable nitrogen in whole blood, serum, urine or other body fluids.

It is possible that sulfanilamide combines in some way with the free amino nitrogen of protein degradation products and renders them unsuitable for bacterial utilization. This particular point is still under investigation, but other possible explanations of the precise mechanism involved are also being studied. Such a concept would appear to explain why the sulfanilamide compounds are active only against certain organisms and in certain specialized mediums.

Furthermore, it would explain the failure of sulfanilamide to destroy hemolytic streptococci in localized areas of tissue proteolysis, such as abscesses or heavily traumatized wounds. It would account for the failure of these drugs to act on the localized suppurative lesions of staphylococcic origin and the successful results which have at times attended its use in diffuse staphylococcic cellulitis and bacteremia. This hypothesis is consistent with the spectacular effects of sulfapyridine in pneumococcic infections, because of the minimal tissue injury in the lung in pneumococcic pneumonia.

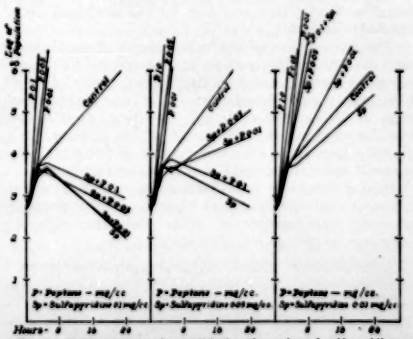


Fig. 5.—Role of peptone in conditioning the action of sulfapyridine on pneumococci type III in serum (experiment 130 [Rutter]).

SUMMARY

1. Sulfanilamide has a bacteriostatic and limited bactericidal action in vitro on hemolytic streptococci, staphylococci, pneumococci and colon bacilli. The magnitude of this effect is dependent principally on (*a*) the concentration of the drug and (*b*) the concentration of "peptone" in the culture mediums.

2. "Peptone," as used in this paper, connotes any product of protein digestion whether prepared artificially in vitro or through the operation of natural enzymatic processes in vivo.

3. It is our belief that sulfanilamide acts by interfering with the nutritional requirements of susceptible bacteria and that the bacteria can die out in a phagocyte-free environment through starvation and autolysis.

4. The addition of peptone to mediums such as serum, which are deficient in nitrogen easily assimilable by bacteria, supplies such an excess of nitrogenous material that the bacteriostatic action of sulfanilamide is to a large degree inhibited.

INTRAVENOUS AND RECTAL ADMINISTRATION OF SULFAPYRIDINE

IN PNEUMOCOCCIC PNEUMONIA

W. L. WHITTEMORE, M.D.
C. L. ROYSTER, M.D.
AND
PAUL A. RIEDEL, PH.D.
NEW YORK

In the past five months an attempt was made to observe and evaluate any advantages in a series of cases of pneumonia that might result from administering sodium sulfapyridine intravenously and sulfapyridine intrarectally.

In each case the diagnosis was confirmed by x-ray evidence. Preliminary blood culture and typing and culture of sputum were performed in all cases. The blood levels were determined for all patients save those of the oral group admitted later. These are being mentioned without consideration of blood levels.

Eighteen patients were first treated intravenously with sodium sulfapyridine. Of these sixteen were treated entirely by the intravenous route.

Thirteen patients were given sulfapyridine by the rectal method alone and one by the oral and rectal methods combined.

The investigation of the intravenous and rectal routes was decided on in an effort to improve on the results of oral treatment noted in sixty cases, thirty of which have been previously reported. Our hope was to eliminate or decrease nausea and vomiting, a secondary rise in temperature and spread of the disease, occasionally seen after the initial response (whether large or small doses were used), and to hasten recovery.

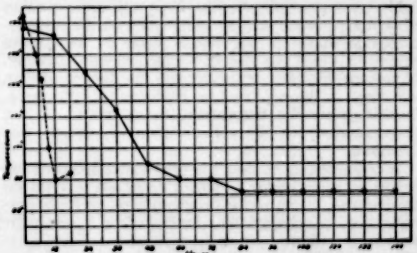
In our composite temperature chart the intravenous curve is continued only for eighteen hours, primarily showing the rapidity of drop compared with the response to rectal administration.

INTRAVENOUS SODIUM SULFAPYRIDINE THERAPY

In the first two cases, sodium sulfapyridine was given in 1 Gm. doses prepared by dissolving the drug in 1,000 cc. of saline solution. There was a temporary but immediate response, consisting of a drop in temperature of 2 or 3 degrees after one to three hours. The two patients were then placed on oral sulfapyridine therapy and a typical response followed. Although we have given as much as 4 Gm. in 20 cc. of saline solution, making a 20 per cent solution, with no bad reaction, we adopted 2 Gm. of sodium sulfapyridine in 20 cc. of physiologic solution of sodium chloride as the standard initial dose. We found that in sixteen cases this gave an average blood level of 3.7 mg. within five to sixty minutes. In fifteen cases of this group this dose was repeated in four to six hours and there resulted an average blood level of 6.3 mg. After this second dose fourteen of the patients experienced a drop to normal temperature and an accompanying decrease of toxicity, pulse rate and other symptoms. This response occurred within six to twelve hours after the first dose. A fairly consistent response to treatment was obtained up to this point.

Of the fourteen patients who had received two injections of 2 Gm. each six had no subsequent rise in temperature and had uneventful recoveries. The remainder, on the other hand, experienced recrudescences of their fever from twelve to fifteen hours after their second injection, occasionally to a point as high as when treatment was begun, but without as much toxicity. At the time of this reactivation in eight, blood levels in all fourteen cases were found to average 2.2 mg., which indicated a rapid drop.

Further medication produced an elevation in blood level and a favorable lasting response and recovery in five of the fourteen cases. In nine cases when the drug was stopped third and subsequent temperature rises occurred, and again a low level of 1.4 mg. was noted from eight to twelve hours after the last injection, but reintroduction of treatment always terminated the rises. In the cases with this response a widely variable and uneven temperature curve resulted, as was the case with the blood level values. The fact that many patients were found to maintain an adequate blood level for much longer than the twelve hour period described has so far made any set routine impossible beyond the first two doses. In all but six cases we found that the drug concentration was diminished below an effective level at the end of an eight to twelve hour period. The average total dose in this intravenous group was 8 Gm., the smallest 2 Gm. and the largest 20 Gm. No nausea or vomiting occurred except that one patient experienced nausea after each injection.



Composite temperatures. The solid line indicates rectal therapy and the broken line intravenous therapy.

Of the four patients who did not respond immediately to intravenous therapy,

1. C. C. had type XIX bacteremia and empyema and responded favorably after surgical drainage.

2. C. P., with type I bacteremia and an apparently overwhelming infection, had a blood level of only 3.2 mg. in spite of having received 18 Gm. of sodium sulfapyridine in thirty-six hours. He was given 200,000 units of type I serum on account of his low blood level and persistently positive blood culture, had interlobar empyema after leaving the hospital and was treated by repeated aspiration.

3. From T. J., aged 49, thought to have streptococcic pneumonia because of the sputum culture and the clinical course, type I pneumococcus was recovered by terminal lung puncture. His death will be discussed later.

From the New York City Hospital, Welfare Island.

4. F. D., with type VII pneumonia, whose temperature remained elevated for thirty hours, received 10 Gm. intravenously in 2 Gm. doses every six hours during the period. When the blood level reached 4 mg. a favorable response occurred and recovery was uneventful, including the subsidence of jaundice, which was present on admission. The icteric index decreased from 12 to 6 at the same time. A similar reduction of the icteric index was observed in five other patients, none of whom had clinical jaundice.

RECTAL SULFAPYRIDINE THERAPY

Fourteen patients who did not appear too ill on admission had rectal treatment alone, and all recovered. Sulfapyridine was initially administered in 6 Gm. doses suspended in 3 ounces of water with from 0.66 to 1 Gm. of sodium bicarbonate. This formed an effective non-irritating suspension of the drug. After a cleansing enema this suspension was introduced as a retention enema. At four hour intervals 2 Gm. doses and later 3 Gm. doses were employed. Blood levels were lower than those obtained by the oral and intravenous methods and averaged for the group 3.0 mg., though patient F. C. reached a concentration of 5.4 mg. It was found that three times the usual oral dose was required to produce adequate blood levels. The clinical response was slower than with the oral route but was uniformly satisfactory. The average time required for the temperature to reach normal was forty-eight hours, as compared with thirty-six hours in those treated orally and twelve hours in those treated intravenously. The same decrease in toxicity was also noted. Only one patient, F. C., exhibited nausea and vomiting. No evidence of rectal irritability was noted. Therefore we believed that the rectal route, with the dosage as outlined, is a satisfactory and less disturbing method for patients showing gastric irritability and not too seriously ill.

THE SEVEN FATAL CASES IN THE SERIES OF NINETY-TWO CASES WITH ORAL, INTRAVENOUS AND RECTAL TREATMENT

1. J. G., aged 53, had type III pneumonia. Blood culture yielded negative results. Oral treatment was begun thirty-six hours after onset and death occurred on the fifth day. On the fourth day the blood level was 14.0 mg. total, 13.3 mg. free; on the fifth day, 14.5 mg. total, 9.0 free. The white cell count was 27,000 with 68 per cent polymorphonuclears and 30 per cent band forms. This patient was admitted in poor condition and showed no favorable response.

2. T. J., an alcoholic man aged 49, mentioned previously, was admitted on the fifth day of illness with a pulse rate of 136 and respiratory rate of 36, in a markedly toxic and delirious state. He received 8 Gm. intravenously in twenty-four hours, which produced a blood level of only 2.4 mg., but the temperature was normal forty-eight hours after the initial dose. The pulse remained rapid, and the patient continued to be toxic. With another abrupt rise in temperature intravenous administration of 2 Gm. was followed by normal temperature persisting throughout his last forty-eight hours. His sputum cultures were reported to contain chain cocci, but a terminal lung puncture showed type I pneumonia. Though this patient died afebrile and in vasomotor collapse with a rapid running pulse, we feel that he should have had the benefit of heavier dosage.

3. A. O., a desperately ill alcoholic man aged 60, was admitted on the fifth day of illness. There were type II organisms in the sputum, and the blood culture was positive. The pulse rate was 160 and the liver enlarged. He died twenty-four hours later. He received 2 Gm. intravenously every two hours for five doses without response. The blood level was 6.1 mg. total and 3 mg. free.

4. R. S., a man aged 74, was delirious and comatose on admission, with a large liver, jaundice and a temperature of 104 F. He was given sulfapyridine orally, and the temperature, pulse and respiration were normal for three days. Then the temperature fell to between 95 and 96 F. Clinically he was much improved. He died suddenly with normal temperature six days after admission. Autopsy showed resolving pneumonia and toxic hepatitis, the cause of which was not definitely determined. He had had 34 Gm. of the drug in all.

5. McG., a man aged 36, had type II organisms in the sputum and a positive blood culture. He was admitted on the seventh day and died five days later. He had 23 mg. of sulfapyridine in all. He became progressively more toxic. On the twelfth day he had 200,000 units of type II serum. The white cell count was 17,000 with 83 per cent polymorphonuclears and 10 per cent band forms. Death occurred in vasomotor collapse.

6. C. D., a man aged 40, was admitted on the seventh day of illness with type I organisms in the sputum, a positive blood culture and empyema, which was evacuated on the eighteenth day. Death occurred on the fifty-first day. Autopsy showed acute vegetative endocarditis, pneumococcic meningitis and chronic empyema. The total dose (oral) was 44 Gm. in fifty-one days, but of this 30 Gm. was given in the first week. Five blood levels varied between 2.6 and 7.2 mg. (total). A violent allergic reaction occurred after 30,000 units of serum was given, though conjunctival and cutaneous tests had been negative.

7. K., a woman aged 76 with type XII pneumonia, was admitted in coma. She had an initial favorable response for three days but died on the sixth day. She had sustained a head injury ten days before admission, which may very well have been the primary factor in her death.

SUMMARY

Ninety-two patients were treated with sulfapyridine and its sodium salt, with a mortality of 7.6 per cent. Of this number fourteen were treated intrarectally and eighteen with sodium sulfapyridine intravenously. Although this is too small a number to be of value statistically, certain facts are apparent and inferences may be made concerning the value of these forms of treatment. Rectal administration almost eliminates nausea. Blood levels tend to be lower, and response to therapy is slower.

The intravenous use of sodium sulfapyridine in the manner described caused no local or systemic reaction. Nausea occurred after injections in only one case. The therapeutic effect was rapid save in the four cases considered in detail. There was difficulty in maintaining constant blood levels, and a consequent erratic course of recovery was found to be the chief difficulty in this form of treatment. Seven deaths occurred in ninety-two cases and were analyzed. We are of the opinion that, when there is no initially favorable reaction to sulfapyridine, serum should be used in full doses.

From a study of response and blood level, we are of the opinion that a desirable method of administering these drugs to seriously ill patients is to give sodium sulfapyridine intravenously at first and follow it immediately with sulfapyridine administered orally.

66 East Sixty-Sixth Street.

The Keynote to Sir William Osler's Character.—It has been said that he would have achieved greatness in any career, but it is certain that in no other walk of life would he have found so much exercise for his many gifts or fulfilled himself and been so happy as in the practice of medicine. His intense sympathy, his genius for friendship with young and old, his capacity for teaching and organization—for all these medicine gave ample scope. The keynote to his character was struck in a remark he made to his students: "There are people in life and there are many of them whom you will have to help as long as they live. They will never be able to stand alone."—Langdon-Brown, Sir Walter: Thus We Are Men, New York, Longmans, Green & Co., 1939.

SULFANILAMIDE IN TREATMENT OF SORE THROAT DUE TO HEMOLYTIC STREPTOCOCCI

WITH CONTROLS

PAUL S. RHOADS, M.D.
EVANSTON, ILL.
AND
M. L. AFREMOW, M.D.
CHICAGO

In a previous study [1] it was found that approximately one fourth of the illness among the nurses under our care was due to tonsillitis and pharyngitis. Two thirds of these cases were caused by hemolytic streptococci. While this incidence of sore throat may be slightly higher than that in a similar age group of the general population, it is probably lower than the incidence among children. Because of the great frequency of this condition it is likely that as much sulfanilamide is administered for sore throats proved or presumed to be due to hemolytic streptococci as for any of the great variety of infections for which it seems to be useful. The medical literature abounds with reports on the use of this drug for hemolytic streptococcus pharyngitis and tonsillitis. Many workers report almost uniformly favorable results.[2] Others, while impressed with results of the use of sulfanilamide in other streptococcic infections, have noted little favorable effect in ordinary hemolytic streptococcus tonsillitis and pharyngitis.[3] Coburn and Moore [4] found that sulfanilamide administered to rheumatic subjects after the onset of streptococcic throat infections did not prevent recrudescences. However, in a series of eighty rheumatic children who were given the drug prophylactically seventy-nine escaped hemolytic streptococcus infection and signs of activity of rheumatic infection. Schenck,[5] in a review of the use of the drug in otolaryngology, points out that most observers report favorable clinical responses to the drug but that the carrier state was usually not much affected. In our search of the literature we were unable to find a single study in which there were adequate controls.

Our own series is not large but may be of some value because the sulfanilamide treated patients were compared in as many respects as lent themselves to statistical analysis with a group being treated under identical conditions but without this drug.

The present study was begun two years ago. The subjects were all nurses of Cook County Hospital and Evanston Hospital who contracted hemolytic streptococcus pharyngitis or tonsillitis while on duty. There were occasional accompanying infections of the nasal passages and sinuses—five among the sulfanilamide treated group, six among the control group. Only patients with severely inflamed throats, proved to harbor beta hemolytic streptococci and with fever, were selected for the study; alternate patients were treated with the drug. Of the thirty-one sulfanilamide treated patients only three had a temperature below 100 F. and all but five had exudate on the mucous membranes of the pharynx or tonsils. In the control series of thirty-six cases five had a temperature below 100 F. and all but four had exudates. Many patients originally in the treated series were excluded from the study because treatment was begun after the fifth day of illness or because the drug had to be stopped because of reactions before a therapeutic effect could be expected. Aside from the use of sulfanilamide the patients of the two groups were treated in exactly the same way, i. e. with rest in bed until the temperature had been normal at least three days, hot alkaline gargles and either codeine or acetylsalicylic acid for aching in the body. The patients were not given sulfanilamide until their cultures had been reported positive for hemolytic streptococci, so that on the average treatment was begun 2.8 days after onset. The average duration of sulfanilamide treatment was 5.6 days. The dosage varied slightly according to the tolerance of the patients for the drug, but the average daily dose was 3.6 Gm. (54 grains). On the first day from 5 to 6 Gm. (75 to 90 grains) was given, divided usually into four doses. After that from 0.6 to 1.0 Gm. (10 to 15 grains) was given at four hour intervals through the day until the drug was discontinued. The average blood level attained was 6.38 mg. per hundred cubic centimeters. Apparently our method approximated that used by Long and Bliss in a series of forty-six cases.[6] In their series, on the average treatment was begun 2.3 days after onset and the average duration of treatment was five days. These workers state that "a blood concentration of 4 to 6 mg. per cent of sulfanilamide is generally all that is needed, and in many instances the infection may be controlled with lower levels of the drug." They consider the proper dose for adults to be 1 Gm. (15 grains) every four hours day and night at the start. After one day of normal temperature they cut this dose in half, then rapidly decrease as convalescence is established. Long states that none of his treated patients had complications.

TABLE 1.—*Comparison of the Clinical Course of the Sulfanilamide Treated Group with the Group Receiving No Sulfanilamide*

	Sulfanilamide Treated Group (31 Cases)	Control Group (36 Cases)
Average days ill before hospitalization	1.4	1.9
Average days of hospitalization per case	11.6	9.9
Average days off duty per case	18.8	17.5
Average days carrying hemolytic streptococci per case	19.0	19.1
Average leukocyte count	14,130	15,986
Average duration of fever (days)	6.84	4.1
Average highest fever	102.2	101.5
Average duration of exudate on throat	5.4	6.1
Average duration of subjective complaint of sore throat	9.1	8.0
Average duration of cervical adenopathy	11.0	9.6
Percentage of complicated cases	42%	31%

From the Departments of Medicine of Northwestern University Medical School and the University of Illinois Medical School.

1. Rhoads, P. S., and Afremow, M. L.: Clinical and Statistical Study of Sore Throat in Young Adults, Arch. Path. **26**: 403 (July) 1938.

2. Long, P. H., and Bliss, Eleanor A.: Para-Aminobenzenesulfonamide and Its Derivatives: Clinical Observations on Their Use in Treatment of Infection Due to Beta Hemolytic Streptococci, Arch. Surg. **34**: 351 (Feb.) 1937. Smith, Alexander: Chemotherapy of Streptococcal Infections, Particularly Streptococcal Tonsillitis, Lancet **2**: 1064 (Nov. 6) 1937. Gallagher, J. R.: Observations on the Therapeutic Value of Sulfanilamide in Beta Hemolytic Streptococcus Pharyngitis, Am. J. M. Sc. **194**: 830 (Dec.) 1937. Hagemann, P. O., and Blake, F. G.: Clinical Experience with Sulfanilamide in Treatment of Beta Hemolytic Streptococcus Infections, ibid. **195**: 163 (Feb.) 1938. McLaurin, J. G.: Sulfanilamide in Otolaryngology, Ann. Otol., Rhin. & Laryng. **48**: 23 (March) 1939.

3. Schnitker, M. A.: Sulfanilamide: A Review, New England J. Med. **218**: 503 (March 24) 1938. Lockwood, J. S.; Coburn, A. F., and Stokinger, H. E.: Studies on the Mechanism of Action of Sulfanilamide, J. A. M. A. **111**: 2259 (Dec. 17) 1938. Keefer, C. S.: Streptococcal Disease, New England J. Med. **220**: 109 (Jan.) 1939.

4. Coburn, A. F., and Moore, L. V.: The Prophylactic Use of Sulfanilamide in Streptococcal Respiratory Infections, with Especial Reference to Rheumatic Fever, J. Clin. Investigation **18**: 147 (Jan.) 1939.

5. Schenck, H. P.: Use of Sulfanilamide in Otolaryngology, Arch. Otolaryng. **28**: 698 (Nov.) 1938.

6. Long, P. H., and Bliss, Eleanor A.: The Clinical and Experimental Use of Sulfanilamide, Sulfapyridine and Allied Compounds, New York, Macmillan Company, 1939, p. 160.

RESULTS

Table 1 shows that in our study the clinical course of the sulfanilamide treated series was practically identical with that of the untreated controls. The complications of the sore throats in the two groups were also almost the same. A striking feature of pharyngitis and tonsillitis due to hemolytic streptococci is the profound

TABLE 2.—*Comparison of Complications in the Sulfanilamide Treated Group and the Control Group*

	Sulfanilamide Treated Group (31 Cases)	Control Group (36 Cases)
Total number of complicated cases (exclusive of toxic reactions to the drug)	13	11
Paranasal sinusitis	5	6
Chronic carriers (beyond 14 days)	11	11
Otitis media	2	1
Mastoiditis	2 (nonsuppurative)	..
Severe asthenia incapacitating the patients more than one week after fever had subsided	6	1
Acute peritonsillitis	1 (no abscess)	2 (abscess)
Late recurrence of fever	2	..
Rheumatoid arthritis	2	..
Persistent pharyngitis over a long period	..	2
Erythema multiforme	..	1

asthenia which so often incapacitates the victims for many days after the fever, cervical adenitis and other objective signs of active disease have subsided. This complication was much more frequent in our sulfanilamide treated group, possibly as the result of treatment. Those patients found to have positive cultures for hemolytic streptococci two weeks or more after the initial infection are listed in the series as "carriers." It will be seen that sulfanilamide did not influence the carrier state, there being eleven carriers in each group.

Cervical adenopathy occurs to some degree in nearly every case of streptococcic pharyngitis and tonsillitis. It is not considered a complication by us unless the adenopathy is thought to prolong the disability an unusually long time or unless suppuration occurs. Hence cervical adenitis does not appear as a complication in the tabulation of either series.

TABLE 3.—*Toxic Reactions to Sulfanilamide in Thirty-One Cases*

Nausea and vomiting	8
Dizziness and headache	4
Rash	4
Leukopenia	3
Severe asthenia (in absence of other complications)	2
Precordial pain and bradycardia	1
Febrile reaction	1
Tinnitus	1
Hallucinations	1
Severe mental depression	1
Total number exhibiting toxic signs (cyanosis not included)	16

REACTIONS TO SULFANILAMIDE

Some degree of cyanosis was observed in practically every case in which full doses of sulfanilamide were administered and was not listed as a toxic reaction in the tabulations. Table 3 shows that sixteen of the thirty-one sulfanilamide treated patients had one or more of the usual reactions to this drug. Nausea and vomiting were the most frequent reactions; leukopenia, precordial pain and hallucinations were the most alarming. These reactions subsided after withdrawal of the drug. Several other cases are not included in this series because severe toxic manifestations led to discontinuance of the drug before an adequate amount could be given.

SUMMARY AND CONCLUSIONS

In our series of thirty-one sulfanilamide treated patients and thirty-six controls treated under similar conditions but without sulfanilamide, this drug was not found to reduce the severity of the symptoms, shorten the period of incapacity, reduce the incidence of complications or reduce the duration of the carrier state. Toxic manifestations of the drug other than the usual cyanosis occurred in one half of the cases in which sulfanilamide was administered. In a few instances these reactions were serious enough to cause genuine concern.

It is not wise to make sweeping generalizations on the basis of one series of controlled cases. Sulfanilamide is a drug of proved value in severe infections of deep structures due to the hemolytic streptococcus. However, in the average uncomplicated case of tonsillitis or pharyngitis due to hemolytic streptococci the advisability of its routine use is questionable. Certainly no physician should be censured for withholding the drug in these conditions unless complications such as severe cervical adenitis, paranasal sinusitis, otitis media, mastoiditis or meningitis supervene.

636 Church Street, Evanston, Ill.—32 West Randolph Street, Chicago.

THE PRODUCTION OF SULFAPYRIDINE RENAL CALCULI IN MAN

FOLLOWING ADMINISTRATION OF SULFAPYRIDINE

NORMAN PLUMMER, M.D.
AND
FREDERICK McLELLAN, M.D.
NEW YORK

The great interest in the therapeutic use of sulfapyridine has brought forward a multitude of reports showing its efficacy in acute infections. These articles have been closely followed by observations on the toxic manifestations of the drug; apart from gastrointestinal disturbances and a tendency for blood destruction, emphasis must be placed on the effect on the kidneys.

In view of the fact that most of the absorbed drug is excreted by the kidneys, either in the pure or in the conjugated form, it is conceivable that, if precipitating factors are introduced, serious traumatic or mechanical effects might be produced. That crystals of sulfapyridine are precipitated in the kidney tubules and pelves in certain species of mammals has been shown by many observers.

Antopol and Robinson [1] were the first investigators to report the appearance of uroliths in monkeys, rats and rabbits following the oral administration of large amounts of sulfapyridine. These investigators also described changes in the kidneys and ureters secondary to the deposition of sulfapyridine crystals and stones. In the milder cases they found a simple calculous ureteritis and pyelitis causing hematuria, but in the more severe cases marked pyelonephritis producing definite nitrogen retention in the blood. The sulfapyridine stones were discovered to be nonopaque to x-rays, and of particular significance was their observa-

From the New York Hospital and the Departments of Medicine and Urology, Cornell University Medical College.

1. Antopol, William, and Robinson, H.: Urolithiasis and Renal Pathology After Oral Administration of 2(Sulfanilylamino) Pyridine (Sulfapyridine), Proc. Soc. Exper. Biol. & Med. 40: 428 (March) 1939.

tion that the concretions when not excessive were later redissolved or washed out. Gross, Cooper and Lewis [2] analyzed the urinary stones occurring in rats after sulfapyridine administration and found that they were composed of 6.4 per cent free sulfapyridine and 64.1 per cent acetylsulfapyridine. Toomey,[3] in a communica-

Fig. 1 (case 2).—Excretory pyelogram taken fifteen minutes after the dye was injected. A calculus, nonopaque to x-rays, is in the pelvis of the left kidney. Also there is evidence of hydronephrosis and delayed excretion. This study was made three days after sulfapyridine therapy had been instituted and twenty-four hours after the sudden appearance of hematuria and of pain in the left flank. Only 11 Gm. of the drug had been taken when this reaction occurred.

tion to THE JOURNAL, described confirmatory experiments and suggested the dangers of sulfapyridine urolithiasis in the human being.

Hematuria in the human being following sulfapyridine therapy has been reported by a number of investigators.[4] The occurrence, in addition to hematuria, of renal colic and nitrogen retention in human cases was described first by Southworth and Cooke [5] and more recently by Tsao, McCracken, Chen, Kuo and Dale.[6] The patients described by the latter investigators were children, one of whom died of uremia developing after sulfapyridine therapy.

In a recent report we [7] described the renal complications occurring in 323 cases treated with sulfapyridine. In this series there were three cases of nitrogen retention, four cases of hematuria without proved stones and two cases of hematuria in which there was sulfapyridine calculous formation, in one proved at autopsy and in the other by pyelographic study in which crystals and concretions of sulfapyridine were found also in the urinary bladder. A brief description of these cases already has been reported, but because of the interest in this material we are making a more detailed presentation.

2. Gross, Paul; Cooper, F. B., and Lewis, Marion: Urinary Concretions Caused by Sulfapyridine, Proc. Soc. Exper. Biol. & Med. **40**: 448 (March) 1939.

3. Toomey, J. A.: Urinary Concretions and Sulfapyridine, J. A. M. A. **112**: 250 (July 15) 1939.

4. Lawrence, E. A.: Recent Advances in the Treatment of Pneumonia, International Review of Recent Advances in Medicine **3**, No. 3, 1939. Graham, D.; Warner, W. P.; Dauphinee, J. A., and Dickson, R. C.: The Treatment of Pneumococcal Pneumonia with Dagenan, Canad. M. A. J. **40**: 325 (April) 1939. Pepper, D. S.; Phippin, H. F.; Schwartz, L., and Lockwood, J. S.: The Results of Sulfapyridine Therapy in 400 Cases of Typed Pneumococcic Pneumonia, Am. J. M. Sc. **198**: 22, 1939.

5. Southworth, Hamilton, and Cooke, Crispin: Hematuria, Abdominal Pain and Nitrogen Retention Associated with Sulfapyridine, J. A. M. A. **112**: 1820 (May 6) 1939.

6. Tsao, Y. F.; McCracken, M. E.; Chen, J.; Kuo, P. T., and Dale, C. L.: Renal Complication in Sulfapyridine Therapy, J.A.M.A. **113**: 1316 (Sept. 30) 1939.

7. Plummer, Norman, and Ensworth, Herbert: Sulfapyridine in the Treatment of Pneumonia, J.A.M.A. **113**: 1847 (Nov. 18) 1939.

REPORT OF CASES

CASE 1.—*History.*—R. I., a married woman aged 40, was admitted to the Medical Pavilion of the New York Hospital Dec. 27, 1938, with weakness, fatigability, afternoon fever, loss of weight and anorexia of three months' duration.

At the age of 3 years the patient had inflammatory rheumatism involving the knees, ankles and wrists. Cardiac murmurs were detected after this illness, and from that time physical activities were always restricted. At the age of 8 there was a recurrence of inflammatory rheumatism.

Examination.—The temperature was 38.2 C. (100.8 F.), pulse rate 94, respiratory rate 18, and blood pressure 105 systolic, 60 diastolic. The patient was poorly nourished. The middle finger of the right hand in the region of the middle phalanx was swollen but not discolored or tender. No other joints were involved. The patient was in no particular discomfort and was not dyspneic or orthopneic. The heart was slightly enlarged. A short systolic thrill was felt at the apex. A soft, rough systolic murmur was heard best at the apex, and a crescendo presystolic murmur was heard, loudest in the mitral area. The liver and spleen were easily palpable but were not tender.

Urinalysis showed a specific gravity of 1.008 and no albumin or sugar. Microscopic study showed no red blood cells or casts but a few white blood cells. The hemoglobin content of the blood was 80 per cent, red cell count 4,000,000 and white cell count 7,500. Serologic tests were negative. Blood culture yielded a nonhemolytic alpha prime streptococcus.

Course in the Hospital.—On the basis of the physical features and the positive blood culture, the diagnosis of subacute bac-

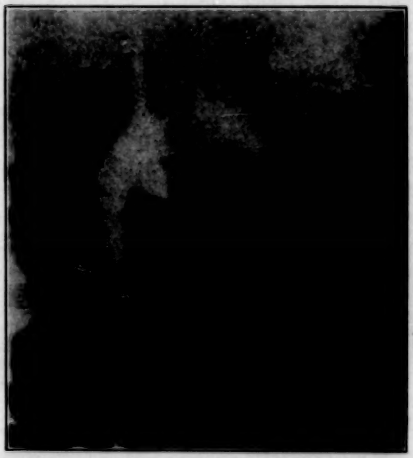


Fig. 2 (case 2).—Pyelogram made fifteen minutes after the dye was injected, showing a normal left kidney. The calculus and evidences of hydronephrosis no longer appear. This study was made twelve days after the attack of hematuria and colic.

terial endocarditis was made. The patient was given sulfanilamide 1.2 Gm. six times daily until a total of 55.2 Gm. had been given. This drug was discontinued and sulfapyridine was administered in doses of 1 Gm. six times daily, and until shortly before death 555 Gm. had been received. The sulfanilamide had had no clinical effect on the patient, but with the sulfapyridine the temperature was reduced, and in spite

of some nausea the patient was much more comfortable. The blood cultures at several examinations were sterile and at all times showed a colony count lower than on admission. The blood hemoglobin level was slightly reduced, but at no time did it go below 70 per cent. The urine showed a few white blood cells and eight days before death showed a large number of

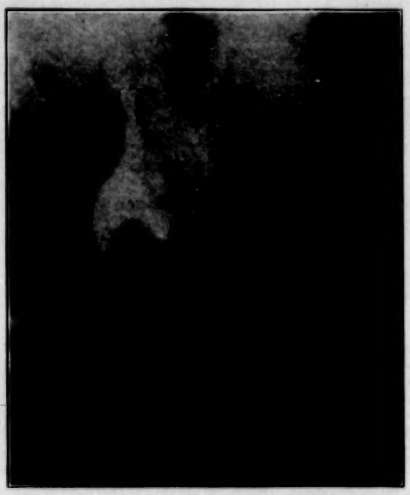


Fig. 3 (case 2).—Pyelogram made seventy-nine days after the reaction, again showing a normal left kidney.

red blood cells but no gross blood. The blood sulfapyridine varied from 4 mg. to 9 mg. per hundred cubic centimeters. On the one hundred and sixteenth hospital day the patient suddenly had convulsive seizures and lapsed into a stupor. Later there developed a stiff neck and a positive Babinski sign on the right side, and lumbar puncture revealed an increased pressure and grossly bloody spinal fluid. The course was rapidly downhill, and the patient died on the one hundred and seventeenth hospital day.

Postmortem Examination.[8]—In the pelvis of the right kidney there were found numerous petechiae and in one calix a colorless stone with a rough surface, measuring 0.5 cm. across. Around this stone were two very small soft sandy crystalline masses. The urinary bladder contained no stones or concretions. When crushed on a slide and examined microscopically, the stone was seen to be made up of coarse rough wedge-shaped striated colorless crystals of which the base and one side were straight, while the third side was ragged. The point was usually sharp. A qualitative test for sulfapyridine was positive. A quantitative test[9] showed the stone to be composed of about 97 per cent sulfapyridine. The difficulty of solubility was such that all acetylated sulfapyridine was transformed into the free form in accomplishing solution, so that the proportion that was originally free was not determined.

CASE 2.—*History.*—K. K., a man aged 46, Greek, was admitted to the medical pavilion April 28, 1939, with pain on respiration in the right lower part of the chest and cough with pink sputum. The symptoms had been present for eighteen hours and a chill occurred shortly before admission. The past history was irrelevant.

Examination.—The temperature was 40.2 C. (104.4 F.), pulse rate 120, respiratory rate 36 and blood pressure 140 systolic, 62 diastolic. The patient was flushed and slightly dyspneic. Physical signs, confirmed by x-ray study, revealed pneumonia of the right lower lobe. The remainder of the physical examination was noncontributory.

Urinalysis showed a specific gravity of 1.020, acid p_H, no sugar or albumin and no cells on microscopic examination. The red blood cell count was 4,500,000 with the hemoglobin content 98 per cent; the white cell count was 12,600. The sputum yielded pneumococcus type III. The blood culture was negative. The Wassermann reaction was 4 plus.

Course in Hospital.—The patient was given the usual supportive measures for pneumonia, and sulfapyridine was administered orally 2 Gm. as an initial dose and 1 Gm. every four hours. There was rapid improvement in the chest condition. Forty-eight hours after admission the patient complained of severe pain in the left flank and passed bloody urine. He received 11 Gm. of sulfapyridine prior to this attack, and the drug was promptly discontinued. The blood sulfapyridine determination was too low to read. An excretory pyelogram on May 1 (fig. 1) showed delayed function in the left kidney with hydronephrosis and a negative shadow in the renal pelvis. A plain roentgenogram of the abdomen did not show any evidence of opaque calculus. Owing to the persistent pain, cystoscopy and retrograde pyelography were done May 3. Cystoscopy revealed the trigon covered with whitish masses of tiny crystals, and a clot protruding from the left ureteral orifice was also studded with crystals. These crystals were washed out for examination and a catheter was easily passed 25 cm. to the left renal pelvis. The urine specimen from each kidney contained no crystals. The function of the left kidney was markedly reduced in urea and phenolsulfonphthalein output as compared with that of the right kidney. The pyelogram again revealed the negative shadow in the left renal pelvis. There was a definite diminution in urinary output for four days. The renal pain on the left persisted for eight days;

Fig. 4 (case 2).—Sulfapyridine crystals (magnified) washed from the urinary bladder.

crystals were not found in the urine after the sixth day, but hematuria persisted until the eighth day. An excretory pyelogram May 12 (fig. 2), fourteen days after the initial attack, revealed a normal left kidney without a filling defect. Results of urinalysis were normal. The lung by this date was clear, and the patient had been afebrile for five days. He was followed at weekly intervals and remained asymptomatic. An excretory pyelogram July 15 (fig. 3), two months after the attack, again showed a normal left kidney.

8. This examination was made by Dr. Jacob Furth.
9. These tests were made under the direction of Dr. Ralph G. Stillman.

Laboratory Report on Crystals Found in the Bladder.[9]—Examination of the crystals revealed small irregular friable white masses. Microscopically these were made up of rather easily broken up bundles of long pointed wedge-shaped, sometimes notched, colorless crystals. On treatment with acid and azotization they gave a typical reaction for sulfapyridine. Morphologically these crystals resembled the crystals from a kidney (case 1) which were identified as sulfapyridine (fig. 4).

SUMMARY AND CONCLUSIONS

1. Two patients had renal calculi after sulfapyridine treatment, proved at postmortem examination and by pyelography, respectively. Both patients had hematuria and one also had renal colic. One had had only 11 Gm. of the drug and the other 555 Gm.

2. Pyelograms in one of the cases showed calculi, nonopaque to x-rays. The serial study indicates that later the calculi dissolved or were washed out and the kidney function returned to normal.

3. The features of these two cases, together with the experimental studies reported by other investigators, indicate that hematuria and other urinary symptoms occurring after sulfapyridine administration are caused by the deposition of sulfapyridine crystals and concretions in the kidneys and ureters.

4. Frequent examinations of the urine, particularly for red blood cells, should be made during sulfapyridine therapy. The drug should be withheld or given very cautiously if hematuria occurs or if the patient is known to have a diminished kidney function.

140 East Fifty-Fourth Street.

SULFANILAMIDE IN THE TREATMENT OF CHANCROID

W. F. SCHWARTZ, M.D.
PASADENA, CALIF.
AND
HAL E. FREEMAN, M.D.
CLEVELAND

Since sulfanilamide was first found to be of value in hemolytic streptococcic infections, the question of ascertaining its action in infections caused by the hemophilic streptobacillus of Ducrey suggested itself.

Previous to the present writing, reports on this subject, all of which have been encouraging, have come from three British clinics [1] and from one American group.[2] Since we have available a large hospitalized venereal service, it is felt that our experiences are worthy of record.

Sulfanilamide has been used in the treatment of chancroid at the Cleveland City Hospital since July 1937. This report covers a series of thirty-seven cases, which were very carefully selected and were considered suitable for this study. For comparison there is also presented, as a control group, a series of sixty similar cases, most of which were seen before July 1937, and which were treated by other methods.

From the Department of Dermatology and Syphilology of the Cleveland City Hospital, service of Drs. H. N. Cole and J. R. Driver, and Western Reserve University School of Medicine.

1. Hanschell, H. M.: Sulfanilamide in Treatment of Chancroid, Lancet **1**:886 (April 16) 1938. Hutchinson, Alexander: Treatment of Chancroidal Bubo with Sulfanilamide, ibid. **1**:1047 (May 7) 1938. Batchelor, R. C. L., and Lees, Robert: Treatment of Chancroid with Sulfanilamide, Brit. M. J. **1**:1100 (May 21) 1938.

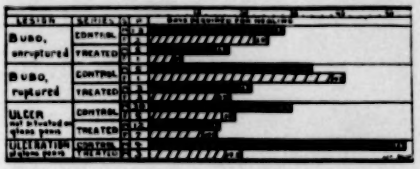
2. Kornblith, B. A.; Jacoby, Adolph, and Wishengrad, Michael: Treatment of Chancroid with Sulfanilamide, J. A. M. A. **111**:523 (Aug. 6) 1938; Sulfanilamide in Treatment of Chancroid, New York State J. Med. **39**:364 (Feb. 15) 1938.

CRITERIA FOR SELECTION OF CASES

No patients were included if the diagnosis was purely clinical.

All patients with buboes and with positive Frei and chancroidal intracutaneous tests were eliminated unless there was a history and/or a scar of a previous bubo to account for the positive Frei test, and also unless a tissue smear was positive for Bacillus haemophilus of Ducrey.

Also eliminated from the reported series were all cases of chancroid complicated by early infectious syphilis. This was done because even though dark field examination was negative the possibility still remained



Results of treatment. *S* indicates sex and *P* the number of patients.

that part of the lesion could be an unrecognized chancre which might heal rapidly as a result of specific antisyphilitic therapy and thus invalidate the reported results.

In order to compare our results with those of previous authors, our cases are divided into those with and those without buboes. The latter group has been further divided into cases with lesions on the glans penis and those with lesions on other dermal structures. This division was made because lesions on the glans heal much more slowly than those in other locations. Whether or not the buboes were ruptured made considerable difference in the time required for healing in the control group, so cases with bubo in the treated series were again classified as those with ruptured and those with unruptured buboes.

DOSAGE

Various daily doses were used and evaluated. The average for the total group was 46 grains (3 Gm.) a day. The total dose varied between 280 and 950 grains (18 and 62 Gm.) and averaged 642 grains (42 Gm.) per patient. After the initial dose of from 3 to 4 Gm. the maintenance dose was determined by the clinical response and of course by the weight and age of the patient. Toxic symptoms such as dermatitis, purpura and cyanosis were carefully watched for, and total blood counts and blood sulfanilamide determinations were frequently done (at least twice a week) in order to guide the maintenance dosage. It became apparent that a high maintenance dosage is of the utmost importance. The least desirable combination is a low initial and a low maintenance dose. The next least desirable is a high initial and a low maintenance dose. The low initial and high maintenance combination is more desirable, while the high initial and high maintenance combination is the most desirable if proper precautions, such as blood study and alkalization, are taken to avoid toxic reactions.

The results observed, according to the previously mentioned various types of lesions, are incorporated in the chart and are self explanatory. The graph indicates days required for healing in each instance and does not represent the total period of hospitalization.

It is noteworthy that the duration of the disease before admission to the hospital varied between two and 365 days and averaged for the control group thirty-five days and for the treated group thirty-two days.

The diagnostic period varied between one and twenty-seven days and averaged two days for the control group and slightly more than five days for the group treated with sulfanilamide. This longer diagnostic period for the latter group indicates that more careful study was made of them in order to be sure they were proper cases for evaluation of the action of the drug. In order to observe the results further, the treated patients were hospitalized for an average of more than six days after complete healing had occurred and they were dismissed for further observation as outpatients.

RESULTS

The results observed in this hospital compare favorably with those reported elsewhere as "dramatic" or "all healed within two weeks." Including all the various types of lesions, the average period of time required for healing in the control group was slightly more than thirty-two days. For the sulfanilamide treated group, this time varied from seven to twenty-three days and averaged 15.7 days, in comparison.

Chancroidal ulcers situated elsewhere than on the glans penis respond best to treatment.

Chancroidal bubo, unruptured, is next most responsive.

There is little difference in the response to sulfanilamide of chancroidal bubo, ruptured, and of ulceration of the glans penis, but the latter lesion is slightly less responsive.

CONCLUSIONS

Sulfanilamide has well known toxic possibilities and therefore should not be used in a routine manner for chancroid without careful control. This drug is efficient, even in resistant cases, and if carefully controlled can be used with gratifying results.

261 East Bellevue Drive—Cleveland City Hospital.

THE USE OF VITAMIN B_1 FOR THE RELIEF OF PAIN IN VARICOSE ULCERS

ALTON OCHSNER, M.D.
AND
MARVIN C. SMITH, M.D.
NEW ORLEANS

Whereas varicose ulcers of the lower extremity are usually accompanied by itching, burning and aching,[1] relatively infrequently is the pain severe. Occasionally, however, patients with varicose ulcers are seen who complain bitterly of pain which is little affected by the usually successful therapeutic methods. Because we have secured such splendid results in these cases by the administration of vitamin B_1, this presentation is made.

For some time, in the Department of Surgery at Hutchinson Memorial Clinic of Tulane University, all patients with clinical and subclinical avitaminosis, persistent neuritis and painful chronic lesions have been given vitamin B_1 (thiamin, Betaxin). It was striking that patients with painful varicose ulcers were relieved shortly after the institution of the vitamin B_1 therapy.

From the Department of Surgery, School of Medicine, Tulane University of Louisiana.

1. Ochsner, Alton, and Garside, Earl: Chronic Leg Ulcers, Texas State J. Med. **25**: 587 (Jan.) 1930.

Krieg[2] had previously (1938) reported results obtained with the use of thiamin. Of the thirty-five patients with varicose ulcers treated with thiamin alone, all but five experienced relief of pain. Four of the five had severe venous stasis and induration of the veins and surrounding areas. Pain, stiffness, heaviness and pressure usually were relieved from four to eight days after the institution of the treatment. When treatment was discontinued, the symptoms returned but in milder form. Krieg observed that in twenty-one cases there was a definite decrease in the size of the varicosities in that the veins, even the large ones, became smaller and that this decrease was visible as well as measurable. Merdinger[3] also observed the beneficial effects of thiamin in relieving the symptoms of varicose ulcers but stated that the relief was of only short duration and did not occur in every case. He believed that better results were obtained when the vitamin was administered intravenously. Krieg[4] in reply to Merdinger's report stated that according to his experience small oral doses were effective in relieving symptoms and, in fact, this method of administration was so satisfactory that the use of intravenous injections had been abandoned.

Of ten patients with painful varicose ulcers admitted to the Hutchinson Memorial Clinic and treated with vitamin B_1, all but one were definitely relieved and eight had complete subsidence of their symptoms. The length of time before the onset of relief varied from three to eleven days, with an average of five days. In two cases the symptoms completely subsided in four days. In the other six cases, disappearance of the symptoms was more gradual but progressive. In five of the ten cases there was, in addition to the relief of symptoms, definite improvement in the healing of the ulcer, although there had been more or less resistance to therapy prior to the vitamin administration. In two cases the discontinuance of the vitamin resulted in the recurrence of the pain but in a milder form. It was promptly relieved when the vitamin was again administered. One patient who had used sedatives for four years because of pain associated with her varicose ulcer has been completely relieved since the institution of the vitamin therapy. The one patient who had no symptomatic response had a large indurated and infected ulcer of four years' duration.

All the patients were women varying in age from 27 to 75 years. There was no correlation between the age of the patients and the onset of relief.

Patients were instructed as to diets relatively high in vitamin B_1 content, but as there were no means of checking these diets accurately the adequate intake of vitamin B_1 was assured by the administration of thiamin tablets in doses above the daily minimum requirement of 300 international units, or 1 mg.[5] It is known that vitamin B_1 is stored in the body in small amounts, but until clinical tests are perfected by which the amounts stored can be determined quantitatively the adequate dose necessary for these patients can be determined only by the trial and error method. Rather early in our investigation it became evident that large doses of the vitamin B_1 were necessary to produce the desired

2. Krieg, E.: Die Beeinflussung des Krampfaderleidens durch Vitamin B_1, München. med. Wchnschr. **85**: 9 (Jan. 7) 1938.

3. Merdinger, Otto: Die Beeinflussung des Krampfaderleidens durch Vitamin B_1, München. med. Wchnschr. **85**: 560 (April 15) 1938; comment on Krieg.[2]

4. Krieg, E.: Rejoinder to Merdinger,[3] München. med. Wchnschr. **85**: 560 (April 15) 1938.

5. Cowgill, G. R.: Human Requirements for Vitamin B_1, J. A. M. A. **111**: 1009 (Sept. 10) 1938.

results. At the present time investigations are being made concerning the relative values of oral and intravenous administration.

Krieg used daily intramuscular injections of from 5 to 10 mg. of thiamin until improvement was noted, then gave 1 mg. three times a day by mouth for a week, followed by a week's administration of 1 mg. twice daily, and then a week's administration of 1 mg. once daily.

It has been suggested by Goodhart and Jolliffe [6] that the best results in the treatment of alcoholic neuritis were obtained by the use of large daily doses (as much as 50 mg. per day) rather than continued small doses. Weiss [7] has shown that when no clinical improvement resulted from the use of small doses of vitamin B_1 in the treatment of alcoholic neuritis the use of larger doses brought about definite clinical results. These experiences, as well as our own, suggest that large doses of vitamin B_1 are necessary in order to relieve pain both in alcoholic neuritis and in varicose ulcer. At the present time we believe that at least 5 mg. (1,500 units) three times a day should be given patients with painful varicose ulcers, and if the symptoms do not subside within three to four days the dose should be doubled.

Summary of Cases of Varicose Ulcers Treated with Thiamin

Case*	Age	Duration of Ulcer	Symptoms	Mg. of Thiamin per Day	Onset of Relief
1	75	2 weeks	Burning pain	3	5 days
2†	37	6 months	Itching, heaviness	3	11 days
3†	49	10 months	Pain	15	5 days
4	27	2 years	Cramping pain	15	4 days
5	41	3 months	Severe burning	3	5 days
6	65	1 month recurrent 30 years	Itching, heaviness	30	Some in 4 days
7	46	2 years recurrent 4 years	Pain	3	None
8	61	2 years	Pain	15	7 days
9	37	2 years	Burning pain	15	3 days
10	31	2 months	Severe pain	3	3 days

* All patients were women.
† Medication was discontinued temporarily with return of the original symptoms in a milder form. Symptoms ceased when medication was resumed.

There is no contraindication to the giving of large doses over prolonged periods. Experiments on animals have shown that enormous doses can be administered with no ill effects. However, lethal doses have been obtained in experiments on animals.

The explanation for the relief of pain associated with varicose ulcers when large amounts of vitamin B_1 are administered is not simple. Because of the inability to determine quantitatively the amount of vitamin B in the blood, one is unable to demonstrate a vitamin B deficiency. Because of prompt relief of pain following the vitamin administration, it is possible, however, that these patients did have a vitamin B_1 deficiency and that the relief was occasioned by correction of the deficiency. The vitamin deficiency may be due to inadequate supply, inadequate absorption or inadequate utilization of the vitamin in the diet. On the other hand, if the supply is normally adequate, the deficiency may be due to factors which require an abnormal amount to supply the body's needs.

6. Goodhart, R. S., and Jolliffe, Norman: Observations of the Effects of Vitamin B_1 Therapy on the Polyneuritis of Alcohol Addicts, J. A. M. A. **110**: 414 (Feb. 5) 1938.
7. Weiss, cited by Cowgill.[5]

RECOVERY IN AMYOTROPHIC LATERAL SCLEROSIS

TREATED WITH TOCOPHEROLS (VITAMIN E): PRELIMINARY REPORT

I. S. WECHSLER, M.D.
NEW YORK

Amyotrophic lateral sclerosis is a chronic disease involving essentially the old and new motor systems, namely the anterior horn cells and the pyramidal tracts. The disease, which affects older adults and persons past middle age, is regarded as a degenerative one of unknown etiology. It is relentlessly progressive. It generally begins in the upper extremities with loss of power, atrophies and fibrillations, and when it ascends, as it generally does, to the medulla it terminates fatally. The duration is from one to two years, longer if the disease begins in the lower extremities. As far as is known there are no remissions, there is no treatment and there is no cure. The neurologic characteristic of the disease is a combination of paralysis and atrophy with increased deep reflexes. In every other disease in which the anterior horn cells are affected, the deep reflexes are invariably lost in the affected limb. In amyotrophic lateral sclerosis, because the pyramidal tracts are also involved, the reverse is true. Because of its insidious nature, the patient at first pays no attention to the disorder or is treated for a long time before it is recognized. This is the reason why the neurologist rarely sees early cases. When they come to him they are usually fairly well advanced. This is of great importance.

The following two cases are reported because they are the first instances within my personal knowledge in which amyotrophic lateral sclerosis has yielded to treatment.[1] The results of treatment have been so spectacular thus far that I am constrained to make this preliminary report. Experimental work on animals has shown that once the anterior horn cells are destroyed because of vitamin privation they cannot be repaired, and the degeneration is progressive. If, however, the condition is recognized early and treated promptly there is the possibility not only of arresting the process but of reversing it. This points to the need of treating amyotrophic lateral sclerosis in its early stages before irreversible damage is done.

The treatment of amyotrophic lateral sclerosis with vitamin E, more particularly the alpha-tocopherol factor, was undertaken with the following considerations in mind: It has been known for a long time [2] that the privation of vitamin E will cause atrophies and paralyses in young rats. The paralyses were observed in the course of experiments on sterility. More recently (1935) Ringsted [3] reported on paresis in old rats suffering from chronic avitaminosis. A year later (1936) Lipshutz [4] described degeneration of the nervous system as the result of privation of vitamin E. In 1937

From the Neurological Service of the Mount Sinai Hospital.
Read at a staff conference of the Mount Sinai Hospital, Jan. 8, 1940.
1. Since this work was done there has appeared an article by Franklin Bicknell entitled Vitamin E in the Treatment of Muscular Dystrophies and Nervous Diseases (Lancet **1**:110-13 [Jan. 6] 1940) in which recovery is reported in two cases of amyotrophic lateral sclerosis, one of six years' duration. Essentially the article deals with the dystrophies, and mention is made of tabes.
2. Evans, H. M., and Burr, G. O.: Development of Paralysis in the Suckling Young of Mothers Deprived of Vitamin E, J. Biol. Chem. **76**: 273-297 (Jan.) 1928.
3. Ringsted, Axel: A Preliminary Note on Appearance of Paresis in Adult Rats Suffering from Chronic Avitaminosis E, Biochem. J. **29**: 788-793 (March) 1935.
4. Lipshutz, D.: Les voies atteintes chez les jeunes rats manquant de vitamine E, Rev. neurol. **65**: 221-233 (Feb.) 1936.

Burr, Brown and Moseley [5] further reported on paralyses in old rats on a diet deficient in vitamin E. In 1938 Einarson and Ringsted [6] published their monograph on the effects of chronic vitamin E deficiency on the nervous system and on the skeletal musculature in old rats. They showed that the posterior columns and pyramidal tracts as well as the anterior horn cells and possibly those of the intermediolateral gray were affected in vitamin E privation. They raised several interesting practical and theoretical questions, among them the fact that the pyramidal tract in the rat is situated in the dorsal and not the lateral column of the spinal cord. What is pertinent to our discussion is that they demonstrated degeneration of the pyramidal tract and anterior horn cells and spoke of the analogy to amyotrophic lateral sclerosis in man.

While it was known that vitamin E privation can cause paralyses of muscles, it was not known what the antisterility factor has to do with it. Einarson and Ringsted raised the question whether there was not also another factor, the privation of which caused degeneration within the nervous system. Thanks to the work of Evans and his collaborators,[7] it has become known more recently that whole wheat germ oil contains alpha and beta tocopherols and that the alpha probably has to do with the muscular atrophy. It was at this point that I began treatment of amyotrophic lateral sclerosis with a synthetic preparation containing alpha-tocopherol.

REPORT OF CASES

CASE 1.—A. L., a man aged 52, an insurance agent, complained of loss of power in the left hand and tiredness of the legs. He was perfectly well up to the present illness, although he stated that he had had an occasional tingling feeling in the left forefinger and aches in the left scapular region for years. In July 1939 he began to have weakness of the left hand, the loss of power gradually becoming so marked that he practically lost the use of the hand. About a week or so before coming to the office, on Oct. 18, 1939, his legs began to tire. There were no other complaints: no fever, no visual disturbances, no gastrointestinal symptoms, no urinary disturbances, no loss of libido, no history of trauma, no major or even minor illnesses.

Neurologic examination was entirely negative except for the following: The biceps, triceps and wrist jerks were much more active on the left than on the right, the left knee jerk was greater than the right and the left abdominals were weaker than those on the right, but the ankle jerks were equal and there were no pathologic reflexes. The left plantar reflex was not present. There was marked weakness of the fingers of the left hand, partial left wrist drop, and weakness of the muscles of the forearm and shoulder girdle. There was marked atrophy of the small muscles of the hand, the interossei and the thenar and hypothenar eminences. The paresis was flaccid. A few fibrillations were seen occasionally in the left arm and shoulder muscles. There were no sensory disturbances. The cerebral nerves were entirely normal. There was asymmetry of the facies with slight lagging of the left corner of the mouth, actually of no significance as the patient had it all his life.

The patient had been receiving vitamin B therapy with no effect. He was admitted to the Mount Sinai Hospital, where all the neurologic observations were confirmed. The serologic reactions were negative. The spinal fluid was normal and there was no block. The blood was normal. X-ray examination of the skull, chest and cervical spine showed no pathologic condition. The electrical reactions, despite the marked atrophies, were not conclusive. A short time before coming to the hospital the patient was given whole wheat germ oil. As soon as studies were completed he was given two tablets of ephynal, 3 mg. each, three times a day. Improvement began almost immediately. After a few weeks the patient regained sufficient power to button his coat, make his tie and use his hand in eating. The wrist drop began to clear up. Once he ran out of the medication and did not take the tablets for three days. Weakness began to return, but immediate recovery set in once more on resumption of treatment. Four weeks later I purposely stopped the administration of the tablets for five days and again the weakness returned, only to disappear as soon as the tablets were readministered. At present he has good power in his hand, and the interosseous spaces and the thenar and hypothenar eminences are beginning to fill out.

CASE 2.—C. B., a woman aged 36, a housewife, was admitted to the hospital in August 1939 with the complaint of weakness in both arms and legs of one year's duration. At first there was difficulty in walking; soon the hands and arms became so weak that she could not feed herself; much later dryness of the throat and difficulty in swallowing set in. There were no visual disturbances, no impairment of urinary function and no other complaints. For years the patient had eaten few green vegetables.

The positive neurologic observations were fibrillations in the muscles of the extremities, trunk and tongue, and marked atrophy and loss of power in the muscles of the hands, feet, and tongue and some of the arms and legs. All the deep reflexes were hyperactive and there was bilateral clonus. The spinal fluid, including dynamics, was normal, and so were the blood chemistry and the serologic reactions. X-ray examination of the spine was negative. There was no doubt of the diagnosis of amyotrophic lateral sclerosis.

The patient was given vitamin B and a diet fairly rich in all vitamins. Within one month she appeared to feel subjectively better and the fibrillations seemed less. In October she was given the tocopherol acetate, three tablets of 3 mg. each in addition to the vitamin B. The difficulty in swallowing gradually subsided by the time of her discharge in November. When seen one month and two months later, the atrophy and fibrillations of the tongue had disappeared and her general strength increased to the extent that from being confined to bed she could walk with assistance; indeed she returned to the follow-up clinic of the hospital.

COMMENT

Although only two cases are cited, the prompt response to vitamin E, namely the synthetic tocopherols, seems to me to be of unusual significance. It is of great importance that full recovery occurred in an early case and that the atrophy of the tongue, which was the youngest symptom in the older case, yielded soonest. Trial in three other cases in which the condition is very far advanced have thus far yielded no results; in a fourth there seems to be some recovery of muscle power. This is in accord with what has been observed in experimental animals. Of even greater significance is the fact observed on two occasions, when the administration of the tocopherols was stopped, that the weakness returned, and, when treatment was resumed, recovery promptly resulted. This is almost a crucial physiologic and clinical experiment indicating that the recovery was the direct result of the treatment.

There are a few theoretical questions worth considering. One is the fact that aside from the pyramidal tract and anterior horn degeneration there is also involvement of the posterior sensory columns in the experimental animals of Einarson and Ringsted. Posterior column degeneration does not as a rule occur in amyotrophic lateral sclerosis, but it so happens that I [8]

5. Burr, G. O.; Brown, W. R., and Moseley, R. L.: Paralysis in Old Age in Rats on a Diet Deficient in Vitamin E, Proc. Soc. Exper. Biol. & Med. 36:780-782 (June) 1937.

6. Einarson, Lárus, and Ringsted, Axel: Effect of Chronic Vitamin E Deficiency on the Nervous System and the Skeletal Musculature in Adult Rats, Copenhagen, Levin & Munksgaard, London, Oxford University Press, 1938.

7. Evans, H. M.: New Light on the Biological Role of Vitamin E (references), J. Mount Sinai Hosp. 6:233 (Jan.) 1940 (the Weir Lecture, October 1939)

8. Wechsler, I. S., and Davison, Charles: Amyotrophic Lateral Sclerosis with Posterior Column Involvement and Various Sensory Disturbances, Arch. Neurol. & Psychiat. 35:229-239 (Feb.) 1936.

reported cases in which there was posterior column involvement. Another point is that the pyramidal tract in rats is not quite comparable to the pyramidal tracts in man. It would therefore be necessary to try vitamin E privation in higher animals, particularly the macacus. Experiments are being undertaken with monkeys deprived of vitamin E, and treatment with wheat germ oil and synthetic tocopherols will be instituted.

There seems to be good evidence of the relation of vitamin E privation to the dystrophies. The muscle degeneration in dystrophy differs from the atrophy which is secondary to loss of anterior horn cells. It is possible, in view of the disappearance of cells from the intermediolateral horns of the cord, that the trophic sympathetic nerves may have something to do with the dystrophies. In any case treatment of the dystrophies with vitamin E is definitely indicated in the hope of curing early cases and arresting old ones.

Although the relapse in case 1 after withdrawing the synthetic vitamin E and the prompt recovery after readministering it is almost absolute proof of the efficacy of the treatment, more cases will have to be treated before final answer can be given. The treatment is now being carried out on a large series and further reports will be made. It is of interest, first, that ordinary good diet may be deficient in vitamin E, that some persons for various reasons do not partake of those articles of diet which are rich in vitamin E, and that some individuals have gastrointestinal disturbances before the advent of the disease. This points to the probability of malabsorption despite adequate vitamin E in the diet. Indeed one patient gave a history of abdominal distress and restricted diet for a year preceding the onset of the illness. This parallels more or less the condition in vitamin B privation, which results in neuropathies. It will therefore be necessary to obtain good dietary histories in every case, particularly as to likes and dislikes of foods. This too is being carried out in the new cases under observation.

In view of the fact that there is or seems to be poor absorption from the gastrointestinal tract in cases of amyotrophic lateral sclerosis and that one cannot in any event gage the amount that is absorbed, the need of administering vitamin E parenterally becomes extremely important. One can now inject the tocopherol in oil intramuscularly, and in the new group of cases injections will be given in addition to feeding of synthetic vitamin E and whole wheat germ oil. Comparative results will be reported as soon as they are available.

CONCLUSION

I would not be understood to say that the absence of vitamin E alone is the cause of amyotrophic lateral sclerosis. There is a theoretical possibility that it is, but we have as yet no proof. It is quite possible that other unknown factors play additional etiologic roles. All one can say is that in one case of amyotrophic lateral sclerosis complete recovery was brought about by the administration of tocopherols, and in another there was marked improvement. I should add that although the patients were also given vitamin B they did not show recovery and that other patients to whom shotgun prescriptions of the A, B, C and D vitamins were administered did not respond. Experimental animals treated with the vitamin B alone also failed to respond. But there is some reason to believe that the added administration of vitamin B may aid the vitamin E in treatment.

70 East Eighty-Third Street.

THE HOUSSAY PHENOMENON IN MAN

REPORT OF A CASE OF DIABETES MELLITUS, INFARCT OF THE ANTERIOR LOBE OF THE PITUITARY BODY AND TERMINAL HYPOGLYCEMIA

J. H. KOTTE, M.D.
AND
A. R. VONDERAHE, M.D.
CINCINNATI

The regulation of carbohydrate metabolism by certain endocrine glands, notably the pancreas and the hypophysis, has been known for some time, but the complex interrelationship between them is as yet imperfectly understood. The antagonism between the pancreas and the hypophysis is perhaps the best appreciated phase of this activity; however, certain other endocrine glands, notably the thyroid and the adrenal glands, also have a regulatory effect on carbohydrate metabolism. The internal secretion of the pancreas is known to be antidiabetic and to aid in some manner the utilization of dextrose by the tissues; the anterior lobe of the hypophysis, however, possesses a diabetogenic or gluconeogenic principle. It was Houssay's [1] publications on the close relationship between the pancreas and the hypophysis that served to stimulate the accumulation of a great mass of experimental data, most of which supports his work.

The Houssay phenomenon refers to (1) the hypersensitivity of hypophysectomized animals to insulin and (2) the virtual disappearance after hypophysectomy of the diabetes induced by depancreatization. Animals with both pancreas and hypophysis removed are found to live longer than ordinary depancreatized animals, apparently because of the relatively normal level of dextrose in the blood, complete absence of ketosis, more normal respiratory quotients and reduction of excessive consumption of nitrogen stores.[2]

Hypoglycemic episodes occur often in diabetic hypophysectomized animals, especially during fasting, and such animals may die in an attack of hypoglycemic crisis. If sugar is given, recovery is usually spectacular but the hypoglycemic crisis recurs unless feeding is maintained. Hypoglycemia in these animals can be prevented if injections of anterior pituitary extracts are given. Hypoglycemic crises may occur as well in nondiabetic hypophysectomized animals, but only when they are kept in a fasting state. Well fed nondiabetic hypophysectomized animals, on the other hand, usually have normal blood sugar levels and carbohydrate reserves.

From these facts it is obvious that the pituitary has a regulatory effect on the blood sugar and is concerned with its maintenance during fasting. At present, two theories are advanced to explain this action: (1) the anterior lobe regulates the available dextrose by stimulating its formation from endogenous protein and possibly from fat, and (2) the anterior lobe regulates carbohydrate oxidation by some stimulating-inhibiting effect.

From the University of Cincinnati College of Medicine and the Cincinnati General Hospital.

1. Houssay, Bernardo: The Hypophysis and Metabolism (Dunham Lecture, Harvard), New England J. Med. **214**: 961 (May) 1936.

2. Russell, Jane A.: Relation of Anterior Pituitary to Carbohydrate Metabolism, Physiol. Rev. **18**: 1 (Jan.) 1938.

In considering the material just presented it should be mentioned that more recently Long and Lukens [3] have produced effects very similar to those obtained by hypophysectomy by complete removal of the adrenal glands in diabetic animals. They consider that hypophysectomy alleviates diabetes by provoking adrenal hypofunction.

While these effects have often been described in a variety of experimental animals, they have rarely been observed in man. Decreased tolerance for sugar has been noted in Cushing's syndrome and in acromegaly associated with hyperplasias of the pituitary body. On the other hand, increased tolerance to dextrose is seen in the destructive or atrophic lesions of the pituitary body, classified clinically as Simmonds' disease.[4] Here the destruction of glandular tissue causes an apparent diminution in the diabetogenic hormone due to what Simmonds considered embolic occlusion of the end arteries of the anterior lobe or to what others have shown to be thrombosis, tuberculosis, metastatic cancer, gumma or abscess. If the destruction occurs suddenly and massively, death may occur before the typical symptoms of Simmonds' disease can occur. Such patients have low blood sugar levels, similar to the low blood sugar level in the hypoglycemic crisis of an experimental animal, and exhibit a general slowing of most physiologic activities. Many case reports, substantiated by postmortem observations, can be found in the literature, some presenting a picture of acute necrosis of the gland similar to that reported here. These are summarized in reports by Calder [5] and by Silver.[6]

Reports of cases in man duplicating Houssay's phenomenon are definitely rare. Lyall and Innes [7] in 1935 reported a case of severe diabetes mellitus which was ameliorated by a lesion of the pituitary body and which finally became sensitive to insulin but showed no spontaneous hypoglycemia. Some authors [8] have attempted roentgen therapy to the hypophysis in diabetes mellitus. Chabanier and his associates [9] reported a case of severe diabetes in which they did an ablation of the anterior lobe of the pituitary body in an effort to effect a cure. Prior to operation the blood sugar averaged 400 mg. per hundred cubic centimeters and the patient took from 150 to 170 units of insulin a day with a carbohydrate intake of only 80 Gm. a day. After removal of the pituitary body the blood sugar ranged between 75 and 220 mg. per hundred cubic centimeters and the diabetes generally improved. However, the patient's quiescent pulmonary tuberculosis became reactivated, after which the dextrose tolerance again decreased and death occurred five months after the operation.

The following case illustrates some of the phenomena described in experimental animals and may be regarded as an example in the clinic of the "Houssay animal":

3. Long, C. N. H., and Lukens, F. D. W.: Effects of Adrenalectomy and Hypophysectomy upon Experimental Diabetes in Cats, J. Exper. Med. 63: 465 (April) 1936; ibid. 63: 743 (Feb.) 1935; Observations on Adrenalectomized, Depancreatectomized Cats, Science 79: 569 (June) 1934; Observations upon Hypophysectomized, Depancreatized Cats, Proc. Soc. Exper. Biol. & Med. 33: 326 (Nov.) 1934.

4. Simmonds, Morris: Ueber Hypophysisschwund mit tödlichem Ausgang, Deutsche med. Wchnschr. 40: 322, 1914; Ueber Kachexie Hypophysären Ursprunges, Deutsche med. Wchnschr. 42: 190, 1916; Atrophie des Hypophysisvorderlappens und hypophysäre Kachexie, München. med. Wchnschr. 65: 441, 1918.

5. Calder, R. M.: Anterior Pituitary Insufficiency (Simmonds' Disease), Bull. Johns Hopkins Hosp. 50: 87 (Feb.) 1932.

6. Silver, Solomon: Simmonds' Disease (Cachexia Hypophyseopriva): Report of Case with Postmortem Observations and Review of Literature, Arch. Int. Med. 51: 175 (Feb.) 1933.

7. Lyall, Alexander, and Innes, J. A.: Diabetes Mellitus and the Pituitary Gland: A Case of Diabetes with Intercurrent Pituitary Lesion and Concomitant Improvement of Diabetes, Lancet 1: 318 (Feb. 9) 1935.

8. Dobrin, Max, and Lucinian, H. H.: Diabetes Treated by Irradiation of Hypophysis, J. Florida M. A. 21: 550 (June) 1935.

9. Chabanier, Henri; Puech, P.; Lobo-Onell, C., and Lelu, E.: Hypophyse et diabète (à propos de l'ablation d'une hypophyse normale dans un cas de diabète grave), Presse méd. 44: 986 (June 10-17) 1936.

REPORT OF CASE

History.—A white man aged 40, unmarried, was admitted to the Cincinnati General Hospital at 6 p. m. Oct. 10, 1938, in a semistuporous condition. The history was difficult to obtain but was supplemented by information from his relatives.

The patient was reticent and unsociable. He lived alone and had few friends and intimates. When in Ireland, five years before admission to the hospital, a diagnosis of diabetes mellitus was made. He followed no rigid, planned diet thereafter but eliminated certain foods on a qualitative and quantitative basis. He was known to test his urine regularly and took insulin more as the need arose than on a definite schedule.

About two months before admission he complained of loss of weight and of weakness, and a short time later of pain in the left side of the chest accompanied by a chronic cough with expectoration, night sweats and easy fatigability. He refused to stop work despite increase in severity of his symptoms.

Two weeks prior to admission he noted a generalized headache, which after a week became so severe that he was taken to his uncle's home. During the two days spent there he was excessively weak and lethargic and coughed frequently; swelling of the ankles was noted. However, at the end of this time he insisted on walking about three miles back to his room and returned to work. Three days before admission he was forced again to go to his uncle's home, where he remained in bed constantly. At this time he tested his urine and it was noted that the blue solution changed to a yellowish color. Extreme weakness, sweating and restlessness were outstanding symptoms. His appetite was only fair, and he ate only a few eggs, bread and lamp chops during the three days preceding admission; during this time, however, it is definitely known that he took no insulin. Dr. J. P. Beneke saw him on the day before admission and found that his urine contained an excessive amount of sugar. On the morning of the day of admission he appeared much worse than on the preceding day. There were pallor, sweating, urinary incontinence and such excessive weakness that he could not talk above a whisper. Because of his precarious condition he was referred to the Cincinnati General Hospital.

Fig. 1.—In this sagittal section through the pituitary body, *A* represents approximately normal glandular tissue and *B* represents an infarct of the anterior lobe with extensive areas of necrosis. Hematoxylin-eosin stain. Reduced from a photomicrograph with a magnification of 15 diameters.

Physicial Examination.—The patient was emaciated. He was semistuporous, perspired freely and lay quietly in bed without much complaint. The temperature was 102.8 F., pulse rate 98, respiratory rate 25 and blood pressure 108 systolic, 50 diastolic. Over the legs there were a few reddish macular areas of irregular outline about 1 cm. in diameter, not fading on pressure. The pupils were equal and reacted to light. Ophthalmoscopic examination revealed no abnormalities.

The trachea was in the midline. The thorax was of the long, thin type, with moderate pigeon breast deformity of the upper part of the sternum. Respirations were feeble, shallow and equal. Resonance was impaired over both apexes, with dulness in the left interscapular area. Many rhonchi were heard bilaterally. There were constant fine rales over the upper lobe of the

left lung posteriorly and also over the base of the right lung. The breath sounds were somewhat increased over the entire left side of the chest. The heart was not enlarged. Its rhythm was regular and there were no murmurs. All pulses were equal but of poor volume. The abdomen was level with the chest, was lax, and moved freely with respirations. No masses or tenderness was found. The liver, spleen and kidneys were not palpable. The rectal examination disclosed a normal condition. A small amount of edema of the ankles could be demonstrated. There was no cyanosis of the extremities or clubbing of the fingers. The neurologic examination showed normal status as far as the patient's cooperation permitted testing.

Fig. 2.—In this higher magnification *A* represents the margin of the infarct and *B* the necrotic portion of the infarct. Hematoxylin-eosin stain. Reduced from a photomicrograph with a magnification of 100 diameters.

Laboratory Data.—Examination of the blood revealed the following values: hemoglobin 11.3 Gm., red cell count 3,330,000, white cell count 8,800 with 84 per cent neutrophils, 1 per cent eosinophils, 1 per cent basophils and 14 per cent lymphocytes. The platelets were normal in amount. A specimen of urine obtained by catheterization presented a specific gravity of 1.018 and contained no albumin, sugar, acetone or abnormal microscopic elements. The stool was normal. The sputum was purulent and contained moderate numbers of tubercle bacilli. The Kahn reaction in the blood was negative. Tests of blood sugar and carbon dioxide combining power were made on admission but not reported as emergency procedures because of a normal picture on urinalysis. A spinal tap showed normal pressure and normal cytologic and serologic features. The cerebrospinal fluid protein was 12 mg. and the chlorides 636 mg. per hundred cubic centimeters.

Course.—The patient remained in a semistuporous state during his eighteen hours in the ward. The temperature rose to 104 F., the pulse rate fell sharply to 75 and later to 60 and the respiratory rate remained between 20 and 30. Terminally, cyanosis of the extremities became apparent, and death took place without any other appreciable change.

Reports on the blood chemistry were returned a few hours after death. The blood sugar level was 31 mg. per hundred cubic centimeters on admission and the carbon dioxide combining power 58 volumes per cent. The urea nitrogen was 19 mg. per hundred cubic centimeters. Twelve hours later the blood sugar was less than 20 mg., a figure too low to be accurately read by Folin's method. The spinal fluid sugar similarly was less than 20 mg.

The patient was thought to have far advanced pulmonary tuberculosis, tuberculous pneumonia and hypoglycemia of undetermined origin.

Postmortem Observations.—An autopsy was performed by Dr. Sabro Tashiro eight hours after death. The body was well developed and poorly nourished. There was clear straw-colored fluid in the right and left thoracic cavities. There were numerous nodular areas presenting caseation and cavitation throughout both lower lobes and the left upper lobe of the lungs. Examination of the gastrointestinal tract revealed acute ileitis with focal fibrino-purulent peritonitis. On microscopic examination the lungs presented a picture of miliary tuberculosis. There was also microscopic evidence of toxic myocardosis and chronic passive congestion of the liver. On microscopic examination of tissue from the kidneys, in addition to toxic nephrosis, vacuolation of the cells of the loops of Henle was noted, a change encountered in cases of diabetes mellitus. Gross and microscopic examination of the pancreas and both adrenal glands (fig. 3) revealed no abnormalities. The pituitary gland presented no gross abnormalities. On microscopic examination of the pituitary gland there was noted an area of partially disintegrated, very pale staining cells implicating the entire anterior lobe except for a few normal glandular cells along some portions of the periphery (figs. 1 and 2). In the border of the ischemic area the capillaries were filled with blood and there was some extravasation of blood. In scattered areas throughout the ischemic area, nuclear fragments were found. The pars intermedia and pars nervosa were not affected, although the blood vessels in these portions of the gland revealed a moderate degree of congestion. A diagnosis of massive infarction with necrosis of glandular tissue of the anterior lobe of the pituitary gland was made.

Gross examination of the brain after fixation in solution of formaldehyde revealed cerebral congestion and moderate cerebral edema. Microscopic examinations of serial sections through the diencephalon revealed an excessive amount of glial proliferation throughout the hypothalamus but especially intense in the paraventricular nucleus and nucleus supra-opticus. Both of these nuclei presented very advanced retrograde changes in the neuron cell bodies with frequent evidence of shadow cells and cell death. There was intense vascular congestion throughout the anterior hypothalamus with some areas of extravasated blood in the subependymal area in the region of the hypothalamic sulcus. There was a pronounced subependymal gliosis.

COMMENT

This diabetic patient was, in effect hypophysectomized and he died in acute hypoglycemia. Lacking other objective knowledge, we have the following evidence that he was diabetic: (1) A diagnosis of diabetes mellitus was made in an Irish hospital and was followed by regular urinalysis for sugar, (2) marked glycosuria was noted by his physician as late as thirty-two hours before admission, (3) used and unused insulin and syringes were found among his belongings after death, and (4) glycogenic degeneration of the loops of Henle was found on microscopic examination of tissue from the kidneys.

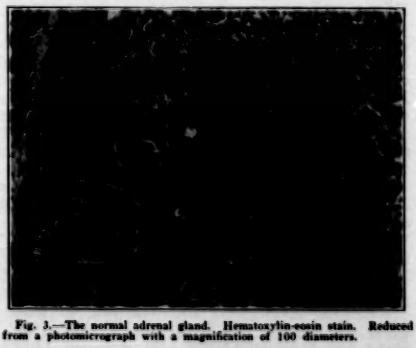


Fig. 3.—The normal adrenal gland. Hematoxylin-eosin stain. Reduced from a photomicrograph with a magnification of 100 diameters.

The necrotic process involving the anterior lobe of the pituitary gland has been demonstrated. The pathologic picture suggests a very recent occurrence because of a lack of organization and because of the very slight amount of cellular reaction. The cause of the infarction remains a matter of speculation. The history indicates that a necessary factor for hypoglycemia, namely fasting, was present. The poor intake of food preceding death, plus the added burden of infection, probably lowered the glycogen stores to a pronounced degree. At the time of death the patient's blood probably contained no sugar, since levels around 20 mg. per hundred cubic centimeters are thought to be due to other reducing substances in the cells, especially gluthathione. It is interesting to note that the patient showed no convulsive phenomena associated with the extreme hypoglycemia.

SUMMARY

A patient with diabetes mellitus of five years' duration had severe terminal hypoglycemia. Autopsy revealed an infarct of the pituitary body with destruction of the anterior lobe. The case was complicated by acute ileitis, localized purulent peritonitis and pulmonary tuberculosis. The evidence presented appears to justify the conclusion that the case represents one of the few recorded examples of the Houssay phenomenon in man.

Clinical Notes, Suggestions and New Instruments

THE NATURE OF THE RENAL LESION WITH SULFAPYRIDINE THERAPY

WALTER A. STRYKER, CHICAGO

Although the gross presence of urinary calculi as a consequence of sulfapyridine therapy has been reported both experimentally and clinically,[1] no calculi have been seen in microscopic preparations. The most constant finding in the microscopic examination of the kidneys in the reported postmortem examinations has been marked dilatation of both convoluted and collecting tubules and of the glomerular spaces. The cause and nature of these lesions have not been demonstrated, however. The calculi and the associated disturbances in renal function constitute the most disturbing complication of the use of sulfapyridine and, as stressed by Bensley,[2] measures designed to prevent such a complication cannot be adequately determined until more is known of its cause. In the case reported here calculi, present grossly, were likewise demonstrable in the histologic preparations of the kidneys, and the etiology of the described cortical lesions could be determined.

From the Illinois Central Hospital and the Department of Pathology, University of Chicago.

1. These reports include:
Antopol, William, and Robinson, H.: Urolithiasis and Renal Pathology After Oral Administration of 2(Sulfanilylamino)Pyridine (Sulfapyridine), Proc. Soc. Exper. Biol. & Med. 40:428 (March) 1939.
Brown, W. H.; Thornton, W. B., and Wilson, J. S.: Observations on the Absorption, Distribution and Excretion of Sulfapyridine, Dagenan or M. & B. 693, J. Clin. Investigation 18:803 (Nov.) 1939.
Gross, Paul; Cooper, F. B., and Lewis, Marion: Urinary Calculi Caused by Sulfapyridine, Urol. & Cutan. Rev. 43:299 (May) 1939.
Kilgour, J. M.: The Treatment of Pneumococcic Pneumonia with Sulfapyridine (Dagenan), Canad. M. A. J. 41:445 (Nov.) 1939.
Long, P. H., and Wood, W. B., Jr.: Observations on the Experimental and Clinical Use of Sulfapyridine: II. The Treatment of Pneumococcal Pneumonia with Sulfapyridine, Ann. Int. Med. 13:487 (Sept.) 1939.
Pepper, D. S.; Flippen, H. F.; Schwartz, Leon, and Lockwood, J. S.: Results of Sulfapyridine Therapy in 400 Cases of Typed Pneumococcic Pneumonia, Am. J. M. Sc. 198:22 (July) 1939.
Plummer, Norman, and Ensworth, H. K.: Sulfapyridine in the Treatment of Pneumonia, J. A. M. A. 113:1847 (Nov. 18) 1939.
Smith, E.; Evelyn, K., and Nolan, J.: Anuria Caused by Sulfapyridine Therapy, Canad. M. A. J. 42:27 (Jan.) 1940.
Smith, F. J., and Needles, R. L.: Report of Fifty Cases of Acute Lobar Pneumonia in Adults Treated with Sulfapyridine, Am. J. M. Sc. 198:19 (July) 1939.
Southworth, Hamilton, and Cooke, Crispin: Hematuria, Abdominal Pain and Nitrogen Retention Associated with Sulfapyridine, J. A. M. A. 113:1820 (May 6) 1939.
Tsao, Y. P.; McCracken, Mary E.; Chen, Ji; Kuo, P. T., and Dale, C. L.: Renal Complications in Sulfapyridine Therapy, J. A. M. A. 113:1316 (Sept. 30) 1939.
Bensley.[2]
Hodes, Gimbel and Burnett.[3]

A child aged 5 months was admitted to the Illinois Central Hospital, in the service of Dr. Everett Laury, Oct. 19, 1939, with symptoms of meningitis. Spinal fluid on examination revealed pneumococcus type VIII, and on the day after admission sulfapyridine therapy was initiated in addition to the use of polyvalent antiserum. The first three days 52½ grains (3.4 Gm.) of the drug was given. During the four weeks the child was in the hospital a total of 44.2 Gm. of sulfapyridine was administered. Ten days after the initial dose gross hematuria appeared and was constantly present thereafter. Sulfanilamide

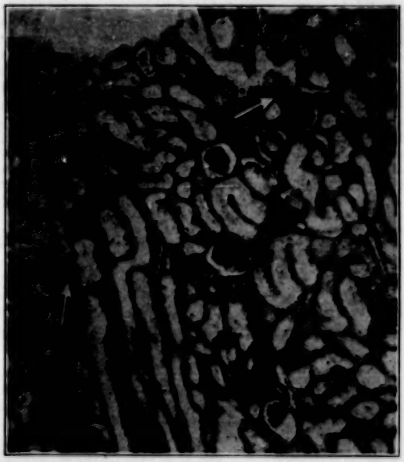


Fig. 1.—Section of cortex of kidney, showing numerous calculi in tubules (indicated by arrows) and dilatation of tubules and glomerular spaces. Slightly reduced from a photomicrograph with a magnification of 110 diameters.

was given for two days with a total dosage of 28 grains (1.8 Gm.). On November 11, examination revealed 8.7 mg. of sulfapyridine per hundred cubic centimeters of blood. Urine studies were not made during the last few days of life because of the difficulty in getting sufficient urine for analysis. The patient died on November 16.

At autopsy the diagnosis of persisting pneumococcic meningitis was confirmed. The kidneys were greatly enlarged, weighing 85 Gm. each, as compared with a normal average weight of 25 Gm. for the age of the patient. The cut edges bulged markedly. In the calices and pelves of both kidneys there was a small amount of yellow-white gravel; from the pelvis of the right kidney four calculi measuring up to 1.5 mm. in diameter were isolated. Neither the pelvis nor the ureter was dilated. In both ureters and in the urinary bladder there was gravel similar to that in the kidneys; this was most prominent at the entrance of the ureters into the bladder. The mucosa of the urinary tract appeared normal.

2. Bensley, E. H.: The Toxic Effect of Sulfanilamide and Related Compounds, Canad. M. A. J. 42:30 (Jan.) 1940.

Sections of the kidneys were prepared by a "rapid" celloidin technic as well as by the usual slower celloidin method. The sections prepared by the former method showed numerous basophilic crystals and other structures in the tubules of the kidney, as described later. In most of the sections prepared by the usual celloidin method, however, no such material was visible, and the appearance was essentially that described in previous reports. The chief difference in the two methods was in the length of time the tissue was in contact with water or dilute solutions, either in the washing of the tissues or in the concentrations of the stains. In an attempt to determine whether the loss of the material in sections might be due to its solution by water, sections of a portion of tissue which exhibited numerous calculi by the rapid relatively anhydrous technic, when examined after contact with water for twenty-four hours, showed a marked quantitative reduction in the amount of the precipitated material in the tubules. In view of these results it appears possible that earlier failure to demonstrate calculi might have been due to the use of technics which dissolved the material. Experimental work to determine the relation of the calculi to the solvent is in progress.

In all the sections there was a marked dilatation of both convoluted and collecting tubules in the cortex, with only occasional dilatation of the tubules in the pyramids. There was also dilatation of Bowman's spaces, with compression of glomerular tufts. These dilatations indicated that the collecting tubules were obstructed. The dilated tubules contained large amounts of basophilic and eosinophilic material present in the form of single or aggregated spherules. The amount of distention of the tubules, as well as the method of preparation of the sections, did not permit accurate identification of each tubule, but the material appeared to be present in both the convoluted and the collecting types. In the medullary rays many of the loops of Henle and the smaller collecting tubules were completely

Fig. 2.—Section of pyramid of kidney, with plugging of loops of Henle and small collecting tubules by basophilic material. Slightly reduced from a photomicrograph with a magnification of 430 diameters.

plugged by the foreign material. This material, both here and in the cortex, was of varying structure. There were many sharp edged basophilic crystals, amorphous basophilic débris and numerous discoid bodies composed of homogeneous material chiefly eosinophilic but occasionally appearing to be a mixture of eosinophilic and basophilic matter. In the washed sections the location of these discoid structures was indicated by eosinophilic bodies of similar form having the appearance of skeletons of the homogeneous masses from which some of the material had been dissolved. These were presumably the protein stroma of the minute globules. In sections prepared from a large block by the usual technic the kidney pelvis contained basophilic masses with rarefied centers. The walls of these masses were bordered by radiating basophilic needles.

Chemical analyses of the concretions in other cases have revealed that they consist chiefly of acetylsulfapyridine and free sulfapyridine. Marshall [3] has explained the formation of the

Fig. 3.—Section of calix of the kidney, with basophilic mass. The center is rarefied; the walls are formed by radiating basophilic needles. From a section prepared by the usual technic. Reduced from a photomicrograph with a magnification of 360 diameters.

crystals as a probable precipitation in the tubules of the kidney as the urine becomes more concentrated. This theory would seem to be supported by the observations made in this case. The material is apparently precipitated in the proximal portions of the tubules, collects in the loops of Henle and the smaller collecting tubules and causes plugging of these excretory ducts. The result of this is the marked dilatation of the tubules and glomerular spaces previously described in other reports. This appearance is in contrast to the more common formation of calculi at the tips of collecting tubules, which causes marked dilatation of the tubules in the medulla and less distention of the cortical elements. It has been suggested [3] that the extent of serious or permanent interference with renal function would depend on the fact that the precipitation of the acteylsulfapyridine was so extensive as to produce blockage of the tubules. Such a process has been demonstrated here and, although complete blood chemistry studies were not made in this case, marked retention of nitrogen has been shown to occur in other cases presenting hematuria and the formation of urinary crystals after treatment with sulfapyridine. Attempts to prevent this complication apparently must be based on practices designed to prevent the precipitation of the crystals. Two precautions have been used. The solubility of acetylsulfapyridine is reported to be less in acid than in alkaline mediums,[3] and hence alkalization of the urine, chiefly by the use of sodium bicarbonate, has been used. The efficacy of this technic is still being determined. Use of large amounts of fluids to prevent concentration of the urine has apparently been successful in several cases, and there is some indication that such a procedure may wash out material previously present. In view of the site of the renal changes, as demonstrated in this case, such a practice would seem to be advisable.

SUMMARY

Precipitation of acetylsulfapyridine in the kidney was found at autopsy of a patient after treatment with sulfapyridine. The marked dilatation of cortical tubules and glomerular spaces characteristic of kidneys in cases of sulfapyridine toxicity seems to depend on intratubular precipitation of the drug or its compounds. There is a possible explanation for the previous difficulty in demonstrating the material in histologic sections.

3. Marshall, E. K., Jr., cited by Hodes, H. L.; Gimbel, H. S., and Burnett, G. W.: Treatment of Pneumococcic Meningitis with Sulfapyridine, J. A. M. A. 113:1614 (Oct. 28) 1939.

AURICULAR FIBRILLATION OBSERVED FOR TWENTY-FIVE YEARS

LOUIS FAUGERES BISHOP, M.D., AND LOUIS FAUGERES BISHOP JR., M.D., NEW YORK

Our primary reason for reporting this case is to illustrate what can occasionally be accomplished in auricular fibrillation.

REPORT OF CASE

History.—A woman aged 55 came to our office on Dec. 17, 1914, complaining chiefly of palpitation and dyspnea on exertion. Her past and family histories were not significant.

At the time of this examination her pulse rate was noted to be 130; the blood pressure was 130 systolic, 105 diastolic. A polygram done at this time indicated that the patient had auricular fibrillation. The auricular fibrillation was studied between the years 1914 and 1939, covering a period of twenty-five years. She was observed at fairly regular intervals.

The auricular fibrillation was first treated in 1914 with an infusion of digitalis. Later in 1916 she began to take doses of powdered leaves varying between 2 and 3 grains (0.13 to 0.2 Gm.) daily and continued it for the remainder of her life, which was for twenty-three years. An estimate of the amount of digitalis consumed between 1914 and 1939 would be 3½ pounds.[1]

During observation, 1914-1923 inclusive, her activities were normal. Her blood pressure was 150 systolic, 90 diastolic. The ventricular rate was approximately 90. Her digitalis

Fig. 1.—One of forty-three polygrams taken with the Mackenzie polygraph showing absence of the A wave in the jugular pulse and the irregular radial pulse (done in 1914).

dosage was 1½ grains (0.1 Gm.) a day, except for one brief period when she omitted it, when it was necessary for a short time to increase it to 3 grains.

The only signs and symptoms noted were slight swelling of the ankles and numbness of the right arm.

In 1931 mild congestive failure was noted as evidenced by moist rales at the left base, which improved when her digitalis

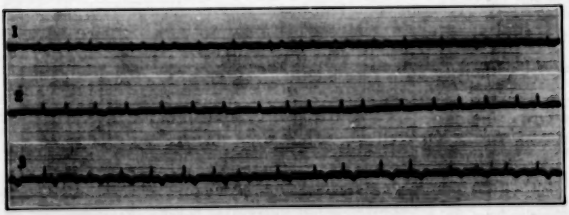


Fig. 2.—Tracing done May 26, 1919.

dosage was increased. Again in 1932 moist rales were noted at both bases, as well as a slightly tender liver. Digitalis dosage was now 2 grains a day. Her blood pressure had risen to 180 systolic and 80 diastolic. During February and March 1934 marked congestive failure gradually developed, and in March 1934 dehydration therapy was begun, which was continued up to the time of her death in September 1939.

In addition to the continuous use of digitalis, ammonium chloride was employed. Over this period she received several types of mercurial diuretics, including the salyrgan types; the salyrgan was given for the most part intramuscularly and the mercupurin intravenously. Mercurial diuretics were administered a total number of forty-six times in doses of from 1 to 3 cc.

Abdominal ascites became a great problem toward the end of her life, and in addition to mercurial diuretics it was necessary to do six abdominal paracenteses.

The woman's death occurred rather suddenly in September, four days after her last paracentesis and her last mercupurin injection. She had a chill and elevation of temperature and went rapidly into coma, dying within approximately twelve hours.

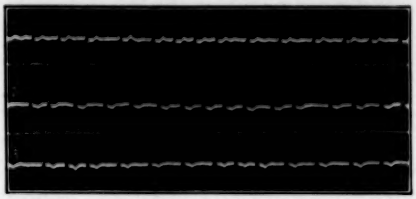


Fig. 3.—Tracing done April 19, 1933.

Pathologic Examination.—Anatomic Diagnosis: 1. Heart. (*a*) Chronic rheumatic heart disease with mitral stenosis. Calcification of left auricle wall. (*b*) Concentric atherosclerosis of left coronary artery with stenosis. (*c*) Left and right ventricle, myocardial hypertrophy. (*d*) Myocardial dilatation, chiefly right auricle.

2. Liver. Fine diffuse cirrhosis.

3. Spleen. Chronic passive congestion.

4. Aorta. Thrombo-ulcerative atherosclerosis, descending portion.

5. General. Pulmonary edema and atelectasis. Hydrothorax and ascites, edema.

Cause of death. Myocardial insufficiency. Etiology: mitral stenosis, left coronary artery stenosis, and hypertrophy and dilatation of myocardium.

SUMMARY

1. In watching a case of this type over a period of twenty-five years one is impressed with the fact that the prognosis lies to some extent in the cooperation of the individual with the disease.

2. In observing an example of mitral stenosis such as this one, certain conclusions become evident. Although there is no definite evidence of when the mitral lesion developed first, it can be inferred that there was no progressive lesion. The mitral stenosis offered little embarrassment to the heart, and this woman reached extreme old age without heart failure. In addition to the mitral lesion, it was noted post mortem that there was evidence of coronary artery disease as well.

3. The mercurial diuretics which she received for the last five years were undoubtedly an important factor in prolonging her life at the end. Although the case itself is a fine example of the prolongation of life by the continuous use of small doses of digitalis, the mercurial diuretics certainly take precedence over digitalis in congestive failure when edema is a prominent feature. In spite of the use of mercurials over this period there were no changes noted in the kidneys which could be attributed to mercury.

The results with few exceptions were remarkable, since the patient always lost from 8 to 10 pounds (3.6 to 4.5 Kg.) of edema following every injection.

121 East Sixtieth Street.

Read before the Eastern Medical Society of the City of New York, Nov. 30, 1939.

1. There are 5,760 grains to a Troy pound.

ADDICTION TO AMPHETAMINE SULFATE

SIDNEY FRIEDENBERG, M.D., CAMDEN, N. J.

While the more spectacular effects of the new drug amphetamine sulfate (benzedrine sulfate) have been given prominence by recent reports, from my own observation its most popular use, that in the treatment of obesity, has been attended by a paucity of reports and with an evident disregard for the habit-forming qualities of amphetamine.[1]

Lesses and Myerson,[2] postulating an altered appetite regulation in many of the obese, were able to place their patients, by the psychically stimulating and appetite-reducing effects of amphetamine, on a low caloric diet, to which they adhered. Amphetamine has been used successfully by Rosenberg [3] to decrease the appetites of a large series of obese patients in conjunction with a low caloric diet. Christian [4] condemns its use in the treatment of obesity.

My purpose in this report is to warn against the possibility of addiction by the continued use of this new stimulating drug in the routine treatment of obesity.

REPORT OF CASE

A woman aged 30 was 5 feet 1 inch (155 cm.) in height and weighed 190 pounds (86 Kg.) in March 1939. She expressed a desire to lose some of her "all too investing" flesh. Previous to 1931 her weight had been 135 pounds (61 Kg.); following a hysterectomy and a bilateral oophorectomy in that year her weight rose to 190 pounds, remaining there with a few sporadic intermissions, during which she had taken thyroid substance as high as 5 grains (0.3 Gm.) daily with immediate loss of weight, subsequent toxic effects and a relapse. She had occasional menopausal symptoms. Examination revealed a moist skin and proptotic eyeballs—later found to be a hereditary characteristic—which had no difficulty in converging. There was no lid lag and the forehead wrinkled easily. A coarse finger tremor was present. The pulse on many occasions was 92. The temperature was always within the normal range. The blood pressure was 120 systolic, 86 diastolic. The thyroid gland was not palpable. The basal metabolic rate was —11. There were no other significant manifestations. The fasting blood sugar was 98 mg. per hundred cubic centimeters. The Wassermann reaction of the blood was negative. Urinalysis and a complete blood count were within normal limits.

During the course of several weeks on a low caloric diet she lost no weight. In May 1939 she was given 5 mg. (one-twelfth grain) of amphetamine sulfate morning and afternoon with the same diet. During the next few months her weight slowly decreased, the amphetamine being increased gradually to 10 mg. (one-sixth grain) twice a day. The blood pressure remained stationary.

In October 1939 it was decided to decrease the dosage of amphetamine to 5 mg. twice a day with the object of eventually stopping the drug altogether. After a week on this dosage she complained that she felt worn out and depressed—a new complaint for her. The next week she was placed on a placebo and returned in seven days urgently demanding that she be placed on a higher dosage. She now feels that she cannot do without her pills and cannot carry on her arduous occupation (beautician) without the stimulus that the amphetamine supplies. Since she is the family bread winner, the problem is not a minor one.

COMMENT

The continued use of amphetamine may result in addiction. Possible deleterious results from long continued use have not yet been investigated fully.

2090 Alabama Road, Fairview Village.

1. Report of the Council on Pharmacy and Chemistry J. A. M. A. 111:27 (July 2) 1938.
2. Lesses, M. F., and Myerson, Abraham: Human Autonomic Pharmacology: XVI. Benzedrine Sulfate as an Aid in the Treatment of Obesity, New England J. Med. 218:119 (Jan. 20) 1938.
3. Rosenberg, Philip: Clinical Use of Benzedrine Sulfate (Amphetamine) in Obesity, M. World 57:656 (Oct.) 1939.
4. Christian, H. A., in Oslers Principles and Practice of Medicine, ed. 13, New York, Appleton-Century, 1938.

Special Articles

THE PHARMACOPEIA AND THE PHYSICIAN

PEDIATRIC EMERGENCIES

JOSEPH BRENNEMANN, M.D.
CHICAGO

This is one of the second series of articles written by eminent authorities for the purpose of extending information concerning the official medicines. The twenty-four articles in this series have been planned and developed through the cooperation of the U. S. Pharmacopeial Committee of Revision and THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.—ED.

Pediatric emergencies find themselves in strange company in a series of papers devoted to "extending information to physicians on the use of official medicines," since relatively few of them require medicinal treatment. When they do, however, the indications are nearly always simple, single and mandatory, and the results are favorable. Only such emergencies will be discussed as occur, alone or predominantly, in childhood or that differ significantly from those of later life.

NEWBORN PERIOD

The newborn infant presents emergencies that are unique. Asphyxia of any degree calls for respiratory stimulation. In the mildest cases flicking cold water or ether on the chest is often all that is necessary. In all the more serious cases the methods of choice, and the most effective, are the use of carbon dioxide inhalation and the Drinker respirator. Yandell Henderson [1] gives the following directions: "The carbon dioxide required for the initial resuscitation should be of whatever strength is needed to induce respiration, but after respiration is started 7 per cent or even 5 per cent is generally sufficient. . . . In premature or otherwise weak babies . . . the inhalation of 5 or 6 per cent carbon dioxide should be repeated several times during the first few days." If these resources are not available some gentle form of artificial respiration must be employed.

Intracranial hemorrhage due to injury at birth, even if it is of clinical significance, offers serious difficulties both as to diagnosis and as to its relationship to asphyxia in a given case. If there has been a difficult and prolonged or a precipitous labor, if the anterior fontanel is tense and full, if there are convulsive seizures, especially if unilateral together with coma, one may assume that this is due to a hemorrhage. If such conditions are not present it is commonly impossible at this time to differentiate a birth injury from a developmental anomaly of the brain. Lumbar puncture probably does no good and from the very nature of the procedure may do harm by increasing intracranial pressure at the time and so inducing more bleeding. If the fontanel is very tense and coma persists, the intravenous injection of from 20 to 50 cc. of 20 per cent dextrose may be of value. Since rest, as nearly absolute as possible, with the use of sedatives if necessary, is the one imperative indication, it is obvious that no disturbing procedure should be employed unless it is clearly indi-

1. Henderson, Yandell: Respiratory Stimulants and Their Dose, J. A. M. A. 108:471-475 (Feb. 6) 1937.

cated. Gavage is necessary after a time if food is not taken naturally.

Hemorrhagic disease of the newborn is one of the dramatic emergencies of this period. About the third day of life the baby begins to bleed from multiple sources—mouth, nose, bowels, vagina, subcutaneous tissues, body cavities, internal organs and even into the brain. Bleeding from the bowel and a slight oozing from the vagina, when this occurs alone, has a different cause and is of little significance. Injection of 20 cc. of human blood, usually from the father, 10 cc. in each buttock followed on the next day by an equal or greater amount of blood serum if the bleeding has not been arrested, has reduced a former mortality of nearly 100 per cent to one that approaches zero. The disease is apparently on the wane and may have something to do with the mother's diet.

Tetany, or hypocalcemia, of the newborn has attracted increasing attention in recent years. The symptoms are much like those of tetany of a later period, with convulsions as the outstanding and most alarming symptom. Chvostek's sign is usually positive but often occurs in the normal newborn infant. The blood calcium is far below the normal 9 to 10 mg. per hundred cubic centimeters of blood. If there is no other obvious cause for the convulsions, treatment should be begun at once without waiting for a calcium determination. In milder cases calcium chloride or calcium gluconate may be given by mouth. In more serious cases 10 cc. of a 10 per cent solution of calcium gluconate should be given intravenously or intramuscularly. To this may be added 20 units of solution of parathyroid subcutaneously. Calcium chloride by mouth may be continued for a time, if necessary, until a sufficient amount of calcium has been obtained from milk in the infant's food.

Congenital atresia of the esophagus is not an extremely rare condition. In nearly all reported cases the upper dilated portion of the esophagus ends blindly at about the bifurcation of the trachea, and the lower attentuated portion passes directly from the stomach into the trachea at or near the bifurcation or into a bronchus. The stomach is usually distended, the lower part of the abdomen retracted. Saliva runs from the dependent corner of the mouth and after taking more than two swallows of water the infant chokes, water gushes from his mouth and nose, he becomes profoundly cyanotic and death seems imminent. The diagnosis may be confirmed by x-ray examination after a small amount of barium sulfate is given by mouth or by finding that a catheter passed into the esophagus ends at about 12 cm. from the alveolar border of the mouth. Gastrostomy, with and without preliminary tying off of the gastric end of the esophagus, and jejunostomy have been tried. No child has ever lived, and with the consent of the parents one is justified in letting the child die without treatment. Death follows around the end of the first week of life from bronchopneumonia and starvation.

GASTROINTESTINAL TRACT

Appendicitis presents a true emergency in the first day or two or even three. If uncomplicated, the fever is usually low, the pain not intense, the white blood count moderately high, and vomiting nearly always occurs early. Point tenderness, more marked and more significant than unelicited pain, occurring most often at or below McBurney's point but also anywhere from the flank to the pelvis and, rarely, even to the left of the left rectus muscle, is the single most important sign in the early stages. In this early period there is usually a voluntary protective contraction of the muscles; involuntary boardlike rigidity indicates peritoneal involvement. Operation is usually clearly indicated in the first two or even three days and at any time if there is spreading peritonitis. If the patient is seen on the third or fourth day and there is an evident tendency for the inflammatory process to become walled off, it is safer to await the disappearance of the mass and to operate a month or two later. In an instance of acute so-called primary peritonitis, nonappendical in origin and due to a pneumococcus or a streptococcus, it is usually better not to operate until localization has taken place. Sulfanilamide or sulfapyridine is indicated depending on whether the cause is a hemolytic streptococcus or a pneumococcus.

Acute intestinal obstructions are relatively frequent in childhood. In the newborn there may be congenital absence or narrowing of a portion of the intestine, more often in the distal ileum, leading to great distress, distention of the abdomen, uncontrollable biliary vomiting and absence of meconium and feces. Surgery is indicated but offers little as a rule. The commonest type of intestinal obstruction is intussusception, usually at the ileocecal junction and predominantly in the first year of life. The onset is uniquely sudden, so that the exact hour of its occurrence is nearly always stated. The child begins abruptly to scream with intense, intermittent, colicky pain, soon followed by vomiting and a varying degree of shock. After a time the pain becomes less severe; he no longer screams or even cries, but with each return of the pain he winces or sighs, draws up his legs or turns over in bed. He no longer smiles, and there is a distant, abstracted, serious, resigned, apprehensive expression that may be misleading but is actually of diagnostic value. Cardinal signs in addition to those mentioned are a slightly tender, sausage-shaped mass, usually in the transverse or descending colon, occasionally in the rectum or even appearing externally, and blood in the stools, though not always in the first one. After this there may be some feces, but there is characteristically an intimate mixture of blood and mucus —rarely only thick, white, glairy mucus. The blood is never copious and never clots, unless there is also a bleeding Meckel's diverticulum (to be discussed later). Of practically pathognomonic significance is a silent spurt of a small amount of a turbid currant jelly-like mixture of blood and mucus which follows the retreating finger after a digital examination. An early intussusception may occasionally be reduced by injecting air or barium sulfate and making gentle pressure under the fluoroscope. Valuable time, however, should not be lost before resorting to surgery, as the condition is a real emergency. Similar obstructions with like indications for treatment occur with volvulus, bands, postoperative adhesions and Meckel's diverticulum. There is usually no definite mass, and there is no blood in the stools; however, both these conditions may occur if Meckel's diverticulum is the starting point of an intussusception.

A hernia, commonly inguinal, may become incarcerated or strangulated. An incarcerated hernia can often be reduced in infants and young children by suspending the body by the feet so that the hips are elevated some distance above the bed. If reduction does not take place after a reasonable time, operation is indicated. Strangulated hernia usually presents more serious symptoms and more urgent indications for treatment. There is

persistent vomiting, pain, tenderness and often shock. Reduction is no longer possible without operation.

Hemorrhage from the bowels is always an arresting symptom and a potential emergency condition. While slight hemorrhages, commonly of obvious causation, occur with papilloma, foreign body, dysentery, intussusception, scurvy, Henoch's purpura and blood dyscrasias, and larger ones with gastric or duodenal ulcers characterized by tarry stools, a copious bright red hemorrhage should always lead one to suspect a bleeding Meckel's diverticulum. The diagnosis is almost certain if the blood clots and is at times bright red and at others darker in color. The bleeding is due to ulceration of so-called misplaced gastric mucosa in the wall of the diverticulum. Rarely, but ominously, the extent of the hemorrhage may not be obvious if only part of the blood is passed. Sudden pallor and marked evidence of secondary anemia should lead to investigation. The hemorrhage commonly ceases spontaneously, but if it persists it is fairly free, and if the diagnosis seems justified the diverticulum should be removed. Perforation of the ulcer, with or without hemorrhage and simulating appendicitis, may occur and even more clearly calls for surgical intervention. Recent observations have shown that a like clinical picture can be produced by papillomas in the colon (demonstrable by x-ray examination).

Foreign bodies in the pharynx may present alarming symptoms, and removal may require skilled assistance. The usual attempt to remove the body with the finger should be avoided except in extreme emergency. If lodged in the esophagus, usually in the upper part, the symptoms may be restricted to discomfort and difficulty in swallowing. Early removal is imperative for fear of rupture into the mediastinum and the pleural cavity, which carries a very high mortality. As a rule, a foreign body that has passed into the stomach will escape through the pylorus and cause no harm in the intestinal tract. Long or peculiarly shaped bodies such as a hairpin or a "bobby pin" may not be able to pass the windings of the duodenum and should be removed from the stomach by an endoscopist, if available; if not, by a surgeon. The x-ray examination is of great value throughout if the foreign body is radiopaque.

RESPIRATORY TRACT

Foreign bodies in the respiratory tract are a common cause of emergency in childhood. In the larynx they may lead to alarming obstruction to breathing. There is usually an inspiratory stridor, hoarseness and a croupy cough that may simulate membranous croup. A pedunculated papilloma of the larynx caught between the vocal cords may produce the same symptoms. There is, however, usually a history of preceding stridor and hoarseness of long standing. In the trachea, if the foreign body is large enough, both main bronchi may be obstructed, resulting in death. If there is only partial obstruction of the trachea or of one main bronchus, there will be an expiratory wheeze that may easily be mistaken for asthma. If the partial obstruction of the bronchus is of the right degree there will be, in addition to the wheeze, an obstructive emphysema on the affected side with possibly eventual respiratory silence and both exaggerated breathing on and displacement of the heart to the opposite side. If the bronchial obstruction is complete, the characteristic signs on the affected side are dulness, absence of breath sounds or bronchial breathing and bronchophony, with exaggerated breathing on the opposite and displacement of the heart toward the affected side. A roentgenogram is obviously of great confirmatory help in diagnosis whether the body is radiopaque or not. Bronchoscopic removal of the foreign body is indicated at the earliest possible time; imperatively so if it is of vegetable origin, because of the well known serious irritation produced by such substances. Three things may well be stressed: the suspiciousness of a wheeze, the fact that a large percentage of foreign bodies are peanuts, and the fact that, while a foreign body in the respiratory tract is always ushered in by sudden choking, commonly with cyanosis and coughing, the latter is no longer present if the body becomes fixed.

Empyema is a condition calling for immediate action only when there is profound impairment of vital capacity and great displacement of the heart and large vessels. Repeated aspiration or closed drainage with gradual removal of pus is then indicated. A tension pneumothorax, nearly always a pyopneumothorax following rupture of an empyema into a bronchus, with a valvelike mechanism permitting freer entrance than exit of air, commonly presents an urgent condition. There is a tympanitic percussion note, sometimes hard to elicit, shifting dulness and absence of breath sounds on the affected side together with exaggerated breath sounds on and displacement of the heart toward the opposite side. A succussion sound, if present, is pathognomonic. Aspiration is futile. Drainage is indicated usually by the closed gradual method, though replacing tension by a simple pneumothorax through open operation would seem a safe procedure if the air is not allowed to escape too freely for a time.

The croup family, all characterized by laryngeal obstruction, requires careful differentiation, since some of the members are urgently alarming and others only apparently so. Excluding those caused by congenital anomalies, foreign bodies and papillomas, they are all due to inflammation and in varying degree to spasm of the larynx. Spasmodic croup usually is easily recognized, especially if there have been previous attacks and if there is a familial tendency. A young child beyond the period of infancy who has seemed well during the daytime, or has at most a slight respiratory infection, after going to bed at night quite suddenly wakes up with a croupy, barky, brassy, sepulchral cough that is soon followed by loud stridulous breathing, profound respiratory obstruction and great restlessness. The condition seems truly alarming to the uninitiated but is usually quite readily relieved in a warm room by inhalation of steam from a croup kettle or some similar device. The ancient remedy of a teaspoonful of syrup of ipecac is effective but messy and distressing. There may be another attack the following night, but usually there is not.

Catarrhal laryngitis is a simple inflammation of the larynx as part of an infection of the respiratory tract and is characterized by hoarseness, croupy painful cough, inspiratory stridor and fever. Spasm is absent or minimal. The onset is not explosively sudden nor restricted as to time, and the symptoms persist for from several to many days without interruption. The condition is rarely serious and can be ameliorated by having the child kept in a warm room more or less saturated with moisture from a croup kettle or a pan of boiling water. It must be differentiated from membranous croup or laryngeal diphtheria, often not an easy matter at the onset.

Membranous croup is usually less febrile and more insidious in onset but more constantly and definitely progressive. The cough is usually more brassy and tight and the stridor more sharp than in simple laryngitis. As the disease progresses there is profound dyspnea, a loud rasping stridor, retraction of the suprasternal notch and the lower end of the sternum, deep cyanosis and great restlessness. The initial hoarseness descends to a whisper and finally to a complete loss of voice such as rarely occurs with a simple catarrhal laryngitis. As the end approaches, the cyanosis gives way to an ashen gray color and the child ceases to struggle. If there is a membrane in the throat or competent laryngeal observation is available, the diagnosis can usually be made early. A culture of material taken from the larynx may reveal the true nature of the disease but is not dependable, and the result should never be awaited before treatment is begun in a suggestive case. From 20,000 to 40,000 units of antitoxin should be given at once and the result from the culture used as a guide to further treatment. If the dyspnea becomes alarming, as shown by great restlessness, increasing cyanosis and retraction, treatment by suction, intubation or tracheotomy is urgently indicated. Environmental factors will necessarily determine the method of choice in a given case.

Laryngotracheitis, if it can be distinguished except by the course from the more serious condition about to be discussed, usually can be relieved by palliative measures. True laryngotracheobronchitis, involving the bronchi as well as the trachea and larynx, is as serious as membranous croup, if not more so, since there is no specific antitoxin and the course is more prolonged, complicated and exhausting. There is sometimes supraglottic and always laryngeal and subglottic obstructive edema, together with a characteristic involvement of the trachea and bronchi, that leads to the formation of thick, tenacious, gummy, ropy secretions that block the air passages. There are thus in a high degree essentially the symptoms and signs of other forms of croup plus those already described as occurring with foreign bodies in the larynx, trachea and bronchi, together with obstructive subglottic and more rarely supraglottic edema. The indications for treatment are to keep the airways clear. In milder cases bronchoscopic suction and intubation may be successful under favorable conditions. In severer cases presenting marked supraglottic and subglottic edema and bronchial obstruction, tracheotomy is imperative. It alone relieves obstructive supraglottic edema and permits as nothing else does the safe removal of the offending secretions by suction with a catheter or by bronchoscopic aspiration. Retention in a warm room saturated with moisture, not too hot, expert nursing and bronchoscopic and medical teamwork are essential to success in meeting the ominous obstructive conditions that often appear with startling suddenness.

GENITO-URINARY TRACT

Uremia or cerebral edema occurring with nephritis, as manifested by headache, dizziness, somnolence, hypertension and eventually coma and convulsions, calls for prompt relief by intravenous injection of 25 per cent dextrose, 0.5 per cent magnesium sulfate or intramuscular injection of from 2 to 4 cc. of 50 per cent magnesium sulfate at four hour intervals until the blood pressure reaches a safe level. A single, harmless but marked urinary retention of unknown etiology occasionally occurs in childhood. Extreme retention may occur as a result of painful urination due to ulceration of the meatus from the "ammoniacal diaper." Immediate relief follows a drop of 5 per cent cocaine hydrochloride solution on the ulcer. Repetition is avoided by wet boric acid dressings, or the application of petrolatum and attention to the ammoniacal diaper. The latter is carried out by thoroughly washing, rinsing and boiling all diapers and soaking and drying those which are to be used at night in a saturated solution of boric acid.

Torsion of the testicle, or rather of the cord, is a rare but serious condition. There is sudden, exquisite pain and swelling of the testicle, nausea and vomiting, and often shock. Necrotic gangrene quickly supervenes with relief of subjective symptoms. Immediate operation must be performed if the testicle is to be saved. Campbell [2] states that removal of the testicle is indicated in 90 per cent of the cases. Spontaneous or therapeutic untwisting of the cord may take place rarely, but even then atrophy is likely to result.

Rupture of a kidney due to a blow or a crushing injury, leading to hematuria and local pain, tenderness and possibly swelling, is nearly always best treated expectantly.

CENTRAL NERVOUS SYSTEM

A convulsion in an infant or a young child occurring at the beginning of a febrile disease or, more rarely, even later in the course of the disease, if the temperature rises rapidly from a low to an adequately high point, has usually the same significance as a chill in an adult and is of relatively little greater importance. It commonly ends spontaneously. If it does not, and especially if there is hyperpyrexia, a tepid, cool or even cold pack is indicated until the fever is reduced to a safe point. Only one thickness or at most two thicknesses of sheet should be used, so that the cooling effect of evaporation may also be called into play. The same procedure will prevent an impending convulsion. Two grains (0.13 Gm.) of acetylsalicylic acid for each year of age, best given in orange or some other heavy syrup, may have the same effect. The use of the conventional hot bath has probably survived only because the convulsion ends in spite of the treatment. If the convulsion still persists it must be controlled even if anesthesia by means of chloroform or avertin with amylene hydrate is necessary. Convulsions occurring periodically during later infancy may be due to tetany and require antirachitic treatment. Occurring periodically at a later period without fever usually means idiopathic epilepsy, although organic disease of the brain must be excluded.

Concussion of the brain, with or without loss of consciousness, is characteristically accompanied by pallor, somnolence and nausea or vomiting. Since organic injury such as hemorrhage has probably taken place, rest is imperative. This is especially indicated if there is a skull fracture, as shown in the roentgenogram, by bleeding from the nose, mouth, ears or into the postorbital space, or by leakage of spinal fluid. Coma and convulsions or localized twitchings, probably due to hemorrhage, are not infrequent. The present tendency is to avoid spinal puncture for either diagnostic or therapeutic purposes. Rest in bed with restraints for the younger child and elevation of the head of the bed should be enforced for a period of several weeks. The temperature, pulse, respiration and blood pressure

2. Campbell, M. F.: The Male Reproductive System, in Brennemann's Practice of Pediatrics, Hagerstown, Md., W. F. Prior Company, Inc. 3: 52 (chapter 30) 1936.

should be carefully watched for a time. If coma and hypertension persist, the treatment described for cerebral edema, or even surgical intervention, may be indicated, the latter especially if there are focal signs. Surgery is usually restricted to cases in which there is obvious or well founded suspicion of a depressed fracture. X-ray examination may show a depression restricted to the inner plate of the skull.

METABOLIC DISTURBANCES

Acidosis occurs as a symptom of many conditions, notably in diabetic coma and in alimentary or intestinal intoxications in infancy following great loss of body fluids and overdosage with salicylates or acetylsalicylic acid. The one dependable clinical symptom is hyperpnea or deep breathing, which may early be of normal rate but in more advanced conditions is deep, rapid and pauseless. The urine shows the presence of acetone and diacetic acid, and in diabetic coma there is glycosuria and hyperglycemia. Treatment is urgent. In all cases replacement of body fluids is indicated. In nondiabetic acidosis this should be done by intravenous injection of dextrose and physiologic solution of sodium chloride, or preferably lactate Ringer's solution. In diabetic coma the intravenous administration of Ringer's or lactate Ringer's solution and the intramuscular injection of insulin are urgently indicated. The volume of fluid should be from 20 to 30 cc. per kilogram of body weight and should not be injected faster than 5 cc. a minute. The insulin requirement during acidosis is not less than 1.5 units per kilogram of body weight plus 1 unit for each gram of sugar administered, usually dextrose in 5 per cent solution.

Increasing interest has recently been directed to hypoglycemia. The hypoglycemia of hyperinsulinism is a familiar example. It may, however, occur with startling suddenness and seriousness in other conditions, such as prolonged starvation, inadequate intake of carbohydrate, liver damage and under still other conditions the nature of which requires further observation for clarification. The symptoms vary from irritability, lassitude and somnolence to convulsions and coma. The treatment consists in the prompt administration of orange juice or sugar to restore the blood sugar concentration to normal. If oral administration is impossible or ineffectual, or if the condition is alarming, from 10 to 25 per cent dextrose solution should be given intravenously. The patient is commonly restored to normal while the injection is being given.

Allergy is widespread, and in the markedly hypersensitive individual the injection of a foreign protein such as horse serum may lead to anaphylactic shock and death. Before antitoxin is given the test for sensitivity of the skin should be performed. If positive, the procedure of desensitization should precede the administration of the full dose of serum and the latter should contain an adequate amount of epinephrine. A hypodermic loaded with this drug should be a part of the equipment whenever serum is given.

In acute poisoning the stomach should be washed out thoroughly unless the agent is an escharotic. If the latter is an acid, an alkaline solution should be given; if an alkali, an acid solution, such as diluted vinegar, is given. Information as to antidotes and specific methods of treatment of all other forms of poisoning should be constantly and immediately accessible to every physician.

707 Fullerton Avenue.

MATERNAL MORTALITY, 1938

EDWIN F. DAILY, M.D.
Director, Division of Maternal and Child Health
U. S. Children's Bureau
WASHINGTON, D. C.

The lowest maternal mortality rate ever recorded in the United States, 43.5 per 10,000 live births, has been reported by the United States Bureau of the Census for the year 1938. For the first time on record less than 10,000 (9,953) deaths were assigned to puerperal causes. The number of live births registered in 1938 was 2,286,962, a birth rate of 17.6 per thousand of population. This was a slight increase over 1937.

The maternal death rate for all causes decreased 11 per cent during the year 1938 (from 49 per 10,000 in 1937 to 43.5 per 10,000 in 1938). The combined rate for abortion and ectopic pregnancy decreased 16 per cent; the rate for puerperal sepsis, including phlegmasia alba dolens, and so on, decreased 12 per cent; the rate for all toxemias decreased 11 per cent, and the combined rate for puerperal hemorrhage and other accidents of childbirth decreased 7 per cent.

Maternal Deaths in 1938

	Number	Per Cent
Total deaths assigned to puerperal causes (International list numbers 140-150)	**9,953**	**100**
Abortion and ectopic gestation	**2,253**	**23**
140—Abortion with septic conditions	1,389	
141—Abortion without mention of septic condition (to include hemorrhage)	435	
142—Ectopic gestation	427	
Puerperal hemorrhage and other accidents of childbirth	**2,659**	**27**
144—Puerperal hemorrhage	1,320	
149—Other accidents of childbirth	1,339	
Puerperal septicemia and puerperal phlegmasia alba dolens, and so on	**2,306**	**24**
145—Puerperal septicemia (not specified as due to abortion)	1,974	
146—Puerperal phlegmasia alba dolens, embolus, sudden death (not specified as septic)	324	
Toxemias of pregnancy	**2,521**	**25**
146—Puerperal albuminuria and eclampsia	2,023	
147—Other toxemias of pregnancy	498	
Other accidents of pregnancy, other and unspecified conditions	**122**	**1**
143—Other accidents of pregnancy (not to include hemorrhage)	104	
150—Other and unspecified conditions of the puerperal state	19	

The accompanying table shows the number of maternal deaths in 1938 from several main groups of causes and the percentage of deaths in each of these groups.

Deaths from abortion and ectopic gestation in 1938 have been grouped together because they represent largely deaths occurring early in pregnancy. Deaths from accidents of pregnancy have been combined with those caused by puerperal hemorrhage because they are largely due to hemorrhage and shock associated with delivery. Deaths from phlegmasia alba dolens and other causes in this group are combined with those caused by puerperal septicemia because they are the result of infection. All toxemias are grouped together because it is impossible to separate satisfactorily each type of toxemia on the basis of information on death certificates. These are largely deaths from eclampsia, preeclampsia and nephritic toxemia (not including chronic nephritis, which is considered nonpuerperal). Deaths from accidents of pregnancy include deaths of undelivered women. These have been combined with the small number of deaths unclassified as to cause.

Approximately one fourth of the maternal deaths resulted from abortion or ectopic gestation, while three fourths are concerned with complications of late pregnancy, delivery or the puerperium.

From 1930 through 1934 the maternal mortality rate decreased only 12 per cent. From 1934 through 1938 the maternal mortality rate has decreased 25 per cent.

The decline of 14 per cent in 1937 as compared with 1936 and 11 per cent in 1938 as compared with 1937 represents a decrease of 23 per cent of the maternal mortality rate in the United States in the two year period 1937 through 1938. There would have been 5,370 more maternal deaths in 1938 if the maternal mortality rate of 1930 had applied in 1938.

The application of the best existing knowledge of maternal care to an increasing number of women is being rewarded by an extremely significant decrease in the number of maternal deaths. But further decrease is possible. To bring it about will require continued effort especially in those areas and among the special groups of the population where the rates are still far too high.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT. HOWARD A. CARTER, Secretary.

LA FRANCE INHALATOR ACCEPTABLE

Manufacturer: The American-La France-Foamite Corporation, Elmira, N. Y.

The La France Inhalator is a portable apparatus designed for the administration of a mixture of oxygen and carbon dioxide in cases of asphyxia. Standard equipment includes a carrying case with two 16 cubic foot cylinders connected through valves to a rubberized cloth reservoir, which is in turn connected by rubber hose to two face masks and head harnesses. The inhalator may also be obtained with only a single cylinder, with which an outboard connection for use with 50 and 200 cubic foot cylinders is furnished. Accessories clipped in the case include tongue forceps, an oral screw, and two wrenches for making the necessary connections. Optional accessories include extra face pieces in different sizes, various sized cylinders filled with oxygen and carbon dioxide for outboard connection, and a case for carrying two spare 16 cubic foot cylinders. All the cylinders contain 7 per cent carbon dioxide. The weight is 56½ pounds and overall dimensions are 6½ by 15½ by 27 inches.

When in operation the gas flows from a cylinder through a valve to the manifold, where a pressure gage indicates in atmospheres the pressure in the cylinder. The gas then passes to the reducing valve, where a considerable reduction of pressure occurs, and on to the volume control valve. This flow control valve is attached to a radial dial graduated in liters of flow per minute. On the side of the flow control valve is a safety valve which provides escape of gas if for any cause the reducing valve should fail. From the control valve the gas passes to the breathing bag, where it expands to approximately atmospheric pressure and passes through a hose and face piece as required by the patient.

The cylinders are filled to a pressure of 145 atmospheres, or 2,175 pounds per square inch. One cylinder is to be used until empty, when a switch can be made to another one without discontinuing resuscitation. This is made possible by the functioning of the high pressure manifold provided with two valves. When the inhalator is to be used for only one patient, the second supply hose can be disengaged. The breathing of the patient can be observed by observing the expansion and contraction of the bag.

The face piece consists of three main parts: the face piece proper of cellulose acetate, an air-inflated rubber cushion, and the valve mechanism. The valve mechanism consists of three valves: one which opens on inhalation of the patient to admit gas from the supply hose and closes on exhalation, a second which opens on exhalation and permits escape of the air to the outside, and a third which acts as a safety valve and allows air from the outside to be drawn into the face piece in case additional volume is needed beyond that supplied by the inhalator.

The inhalator was submitted to a qualified specialist for investigation. As a result of the Council investigation it was concluded that the device described as the La France Inhalator appears to be a well designed and constructed piece of equipment.

The Council voted to accept the La France Inhalator for inclusion on the Council's list of accepted devices.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary.

MERCURIC SALICYLATE (See New and Nonofficial Remedies, 1939, p. 319).

Ampoules Mercuric Salicylate 0.065 Gm. (1 grain), 1 cc.: Each cubic centimeter contains mercuric salicylate 0.065 Gm. (1 grain) and quinine and urea hydrochloride 0.02 Gm. (⅓ grain) suspended in a sweet almond oil and lanum base.

Prepared by the Upjohn Company, Kalamazoo, Mich. No U. S. patent or trademark.

MERCURIC SUCCINIMIDE (See New and Nonofficial Remedies, 1939, p. 320).

Ampoules Mercury Succinimide 0.02 Gm. (⅓ grain), 1 cc.: Each cubic centimeter contains mercuric succinimide 0.02 Gm. (⅓ grain) and chlorobutanol not more than 0.008 Gm. dissolved in distilled water.

Prepared by the Upjohn Company, Kalamazoo, Mich. No U. S. patent or trademark.

POLLEN EXTRACTS-BARRY.—Liquids obtained by extracting the dried pollen of various species of plants.

Actions and Uses.—See general article, Allergenic Protein Preparations, New and Nonofficial Remedies, 1939, page 27.

Dosage.—See general article, Allergenic Protein Preparations, New and Nonofficial Remedies, 1939, page 27.

The following pollen extracts-Barry are marketed in packages of three vials, one containing 3 cc. of a solution having a potency of 100 pollen units per cubic centimeter, one containing 3 cc. of a solution having a potency of 1,000 pollen units per cubic centimeter, and one containing 5 cc. of a solution having a potency of 10,000 pollen units per cubic centimeter.

Prepared by the Barry Allergy Laboratory, Inc., Detroit, Mich. No U. S. patent or trademark.

Grass Mixture (Spring), (June Grass, Timothy, Red Top, Sweet Vernal Grass and Orchard Grass pollen extracts, in equal proportions); Ragweed (Large and Small Ragweed pollen extracts, in equal proportions).

Pollen extracts-Barry are prepared by grinding the dried pollen in a ball mill with a liquid containing 25 per cent glycerin, 0.275 per cent sodium chloride, 0.074 per cent sodium phosphate, 0.0285 per cent potassium dihydrogen phosphate and 0.4 per cent of cresol. The originally prepared solution presents a 3 per cent extract (30,000 pollen units per cubic centimeter), which is subsequently diluted to the desired concentration. The extract is subjected to Berkefeld filtration and is tested for sterility before dilution, after dilution and after filling, as required by the National Institute of Health. The finished liquid contains 8 per cent of glycerin and 0.4 per cent of cresol. The pollen unit corresponds to 0.001 mg. of dried pollen.

THEOBROMINE SODIUM ACETATE (See New and Nonofficial Remedies, 1939, p. 522).

Theobromine and Sodium Acetate-Mallinckrodt.—A brand of theobromine sodium acetate-N. N. R.

Manufactured by Mallinckrodt Chemical Works, St. Louis. No U. S. patent or trademark.

PENTOBARBITAL-SODIUM (See New and Nonofficial Remedies, 1939, p. 121).

Pentobarbital-Sodium-Gane.—A brand of pentobarbital-sodium-N. N. R.

Manufactured by Gane's Chemical Works, Inc., New York.

SULFANILAMIDE-LILLY (See New and Nonofficial Remedies, 1939, p. 466).

The following dosage forms have been accepted:

Pulvules Sulfanilamide-Lilly, 2 grains.
Pulvules Sulfanilamide-Lilly, 5 grains.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street - - - Chicago, Ill.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - - Eight dollars per annum in advance

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent. Such notice should mention all journals received from this office. Important information regarding contributions will be found on second advertising page following reading matter.

SATURDAY, MARCH 16, 1940

THE PLATFORM OF THE AMERICAN MEDICAL ASSOCIATION

The American Medical Association advocates:

1. The establishment of an agency of the federal government under which shall be coordinated and administered all medical and health functions of the federal government exclusive of those of the Army and Navy.

2. The allotment of such funds as the Congress may make available to any state in actual need, for the prevention of disease, the promotion of health and the care of the sick on proof of such need.

3. The principle that the care of the public health and the provision of medical service to the sick is primarily a local responsibility.

4. The development of a mechanism for meeting the needs of expansion of preventive medical services with local determination of needs and local control of administration.

5. The extension of medical care for the indigent and the medically indigent with local determination of needs and local control of administration.

6. In the extension of medical services to all the people, the utmost utilization of qualified medical and hospital facilities already established.

7. The continued development of the private practice of medicine, subject to such changes as may be necessary to maintain the quality of medical services and to increase their availability.

8. Expansion of public health and medical services consistent with the American system of democracy.

THE COURT OF APPEALS DECISION

Elsewhere in this issue appears a complete statement of the decision of the United States Court of Appeals for the District of Columbia in the case of the government versus the American Medical Association and various other organizations and persons. This statement summarizes the indictment and analyzes the case as being concerned with three main problems. These raise essentially the question as to whether or not there was a combination or conspiracy in restraint of trade as that term is used in the Sherman Act and whether or not the indictment was defective in form. There is a considerable discussion of the significance of the phrase "restraint of trade" and various previous legal decisions on the subject are cited, leading the court to the ultimate conclusion that the effect has been to enlarge the common acceptation of the word "trade" to cover all occupations in which men are engaged for a livelihood.

Although the court recognized the great public value of the work of organizations in raising standards of conduct and skill, it was also of the opinion that medical societies may not legally effectuate restraints as far reaching as those which are charged. The court pointed out, of course, that the charge may be wholly unwarranted and the facts, when they are disclosed on the trial, may show an entirely different state of affairs. For the purpose of the decision in the present case, however, the court felt that it must consider the charge as though its verity were established, and if that point of view is taken the court felt that the offense is within the condemnation of the statute. The court then went into the question of corporations practicing medicine and said that, where a corporation operates a clinic, employs physicians and surgeons to treat patients and itself receives the fee, the corporation is unlawfully engaged in the practice of medicine. However, the court was of the opinion that, assuming the allegations of the indictment to be true, Group Health Association, Inc., was something different and, therefore, left open until the trial of the case the question whether or not Group Health Association, Inc., was illegally practicing medicine. Finally, the court took up the charges that were made as to the insufficiency of the indictment and reversed the opinion of the lower court on that point.

The repercussions from this decision by the Court of Appeals are already considerable; many of the opinions expressed indicate that this action is far from ending the consideration of this important subject. It becomes apparent at once that every labor as well as every other professional organization in the United States is intimately concerned with this decision. The Washington *Post* points out that it is well to remember that this opinion is not final, that the Supreme Court has not yet spoken and that, even should the Supreme Court sustain the Court of Appeals rather than Judge Proctor, it would still remain to be seen whether the persons charged in the indictment can be convicted under the indictment.

Between the time when the questions relating to the Group Health Association, Inc., were first raised and the time of this decision by the Court of Appeals, many changes have taken place in the structure of American medicine. The question of distribution of risk by the insurance method in meeting the costs of medical service and the relationship of organized medicine to that question can certainly not now be raised, since some fourteen state medical organizations and innumerable smaller medical units in medical organization are themselves engaged in such plans. The Group Health Association, Inc., seems to be functioning, at least to its own satisfaction, in the District of Columbia, and the Medical Society of the District of Columbia itself has a plan for medical service which is also in the status of an operating experiment.

The decision as to whether or not medicine is a profession or a trade is exceedingly important not only as relates to this case but also in relationship to many another piece of legislation of utmost concern to every

scientific, professional, educational and similar organization in the United States. There are numerous problems associated with the laws regulating taxes, social security, licensure and innumerable other rights and privileges involved in medical practice which depend greatly on the distinction between the practice of a profession and a trade or other occupation.

Thus the decisions made by the courts in relationship to the questions that have been raised are basic and far reaching in their ultimate effect on every organized professional body in this country. The principle at issue involves the right of any professional group to regulate its own conduct and even to determine its own membership. As even the Court of Appeals recognized, the existence of such organized bodies has served vastly for the benefit of the people, achieving objectives in raising the standards of education and of service far beyond those which might have been achieved by any other sort of effort, including no doubt even efforts that might be made by various legally constituted or governmental agencies.

Perhaps the thought is in itself a reflection on our present system of social organization, but it is interesting to realize that the determination of the issue on which the Court of Appeals has just made a pronouncement and on which the Supreme Court has yet to rule is of little or of no importance as relates to the provision of medical service at low cost for large numbers of people. It may be of vast significance, however, in serving to bring about revolution in the existing social organization through the breaking down of established bodies. Such a revolution Mr. Thurman Arnold seems to desire if one interprets correctly his book "The Folklore of Capitalism." The issue involved is thus fundamentally whether or not our democracy as now existing is capable of meeting the needs of civilized man or whether some completely new social scheme is going to be necessary to satisfy those officials of government who have taken on themselves the task of creating a new order.

UNITED STATES INFANT AND MATERNAL MORTALITY RATES

Maternal mortality rates of the United States have been reported and discussed for several years apparently to conjure conclusions designed to throw discredit on the medical profession. The publicity of the Interdepartmental Committee repeatedly charged that there had been no significant decline in the rate of maternal mortality "in the registration area" of the United States during the last twenty years. Credence was given to this statement by the fact that the "registration area" was constantly changing as new states, usually with higher mortality rates, were admitted to the area. Since 1931 only two new states (South Dakota in 1931 and Texas in 1932) have been added to the birth registration area. Only in more recent years have any statistics been available for a uniform registration area. In 1931 the death rate for puerperal causes in the registration area was 6.6 per thousand live births; in 1938 it was 4.4.[1] This is a decline of a little over 30 per cent in eight years.

Again and again the propagandists alleged that the United States was lagging behind most of the other modern nations in its maternal mortality rate. This conclusion was reached by comparing nations, some of which were not larger than some counties in the United States and with an exclusively white population less than that of some American cities, with the entire continental United States with its wide diversity of population, including 10 per cent of Negroes with a peculiarly high maternal mortality rate. Vital statisticians have frequently pointed out that the only fair comparisons of mortality statistics would be between individual states and European nations. The latest reports available from most European nations are for 1937.[2] In that year the maternal death rates for the countries from which invidious comparisons have previously been made were Australia 4.6, Canada 4.8, Chile 9.9, Germany 4.7, New Zealand 3.6, the Netherlands 2.5, Sweden 3.2. In that year the United States registration area had a maternal mortality rate of 4.9. Much more significant is the fact that in twenty-eight states of the United States the maternal death rate in 1938 was below 4.0. In the following states the maternal death rate was below 3.0: Connecticut 2.6, Minnesota 2.8, North Dakota 2.4, Rhode Island 2.8, Wisconsin 2.9.

Infant mortality, generally considered the most sensitive index of health conditions, shows even more significant declines. This rate is the number of deaths under 1 year in each thousand live births. In 1938 the infant death rate in Great Britain was 53 per thousand live births. In the United States it was 50.5 in 1938, and 48.2 was the provisional rate in 1939. The rate for the white race in the United States for 1939 was 47. In some of the more comparable larger nations the infant death rate in 1937, the latest year for which the Annual Epidemiological Report of the League of Nations gives figures, was as follows: Canada 76, Germany 64, England and Wales 58, the Netherlands 38, Sweden 46. The infant death rates for seven states of the Union in 1938 with the provisional rates for 1939 were as follows:[3]

State	1938	1939
Connecticut	36.3	35.5
Indiana	42.5	38.7
Minnesota	38.8	35.8
Nebraska	36.4	33.2
Oregon	39.2	34.7
South Dakota	43.8	37.6
Washington	38.7	38.1

The infant mortality rate for Chicago in 1938 was 33.9 and in 1939 it was 31.3. For New York City it was 38.3 in 1938 and 37.1 in 1939.

As far as any information now available reveals, these infant death rates are the lowest for any com-

1. Maternal Mortality by States and Cities, 1915-1938, Vital Statistics—Special Reports, Department of Commerce, Bureau of the Census 9: 118 (Feb. 10) 1940.
2. Annual Epidemiological Report for the Year 1937, Geneva, 1939, pp. 63-79.
3. Monthly Vital Statistics Bulletin—Annual Summary for 1939, Department of Commerce, Bureau of the Census 9: 4 (Feb. 7) 1940.

parable population in the world. In the two European nations with the lowest death rates, the Netherlands has only a system of cash benefits in its system of compulsory sickness insurance and Sweden has only a voluntary system of sickness insurance.

RESPIRATORY ALLERGY IN CHILDREN AND TONSILLECTOMY

The simulation of diseases by pseudosyndromes may confuse the clinical picture, mislead diagnosis and contribute to therapeutic error. Frequent colds, sinusitis, bronchitis and recurrent pneumonias in children are generally considered infectious and related to reservoirs of infection in the tonsils. Consequently tonsillectomy is often prescribed. According to *Public Health Reports* 1,235,000 tonsillectomies are performed each year in the United States. Hansel and Chang [1] now point out that signs and symptoms of respiratory abnormality in the upper tract may frequently be due to an allergic factor simulating the infectious etiology discoverable in the majority of such cases. Hence the proper diagnosis of respiratory diseases centers for them in careful clinical and laboratory examinations that are based on the threefold possibility of an allergic agent, an infective agent and an allergic phase obscured by acute or chronic infections. Ultimate diagnostic determination is achieved by a differential test.

In an examination of 200 unselected children between the ages of 3 and 16, of whom 104 were boys and ninety-six girls, observed at the clinic of the Washington University School of Medicine in St. Louis in July, August and September 1938, the authors discovered twenty-six cases of nasal allergy, equivalent to 13 per cent of the whole group. In only half of the twenty-six were local nasal symptoms typical. A positive family history of allergy was noted in eleven (42 per cent). Only fourteen (54 per cent) showed typical pallor or edema of the nasal mucosa. Seventeen of the twenty-six had had an acute infectious disease (such as measles, scarlet fever or pertussis). Six of the twenty-six had hay fever when examined. Final diagnosis was based on the demonstration of eosinophils in the nasal secretions. The authors believe that, in the absence of hay fever and asthma, nasal allergy and allergic bronchitis frequently elude diagnosis and that tonsillectomy is often recommended because allergic symptoms are mistaken for those of an infectious origin.

Hansel and Chang estimate that about 160,000 allergic patients (13 per cent of the annual total of more than a million and a quarter of tonsillectomized persons) are unnecessarily subjected to tonsillectomy every year. They note sequels of tonsillectomies performed on allergic children, such as excessive regrowth of lymphoid tissue in the tonsillar fossae and aggravation of allergic symptoms. Children with nasal allergy, allergic involvement of the sinuses, allergic bronchitis and allergic pneumonia are not favorably influenced by tonsillectomy. They caution against the removal of tonsils and adenoids in allergic children during hay fever and against recourse to tonsillectomy with the idea of alleviating allergic symptoms. Indications for tonsillectomy in children with nasal allergy should be the same as those in children without nasal allergy.

1. Hansel, French K., and Chang, C. S.: Relation of Allergy and Tonsillectomy in Children, Arch. Otolaryng. 31:145 (Jan.) 1940.

Current Comment

FIRST DAY SALE OF THE CRAWFORD LONG MEMORIAL STAMP

A new postage stamp commemorating Dr. Crawford W. Long as the discoverer of ether anesthesia will be issued by the Post Office Department, April 8. The first day sale of the two-cent stamp will be held at Jefferson, Ga., where ether was first used as an anesthetic for a surgical operation, March 30, 1842. This operation was for the removal of a tumor from the neck of James M. Venable. Four witnesses were present, one of whom was Dr. Edward S. Rawls. Dr. Long discussed the possibilities of ether as an anesthetic with his fellow physicians. The Universities of Georgia and Pennsylvania, where Dr. Long studied, have provided memorials, and monuments have been erected in his native Danielsville and at Jefferson, Ga. A hospital in Atlanta has been named in honor of Dr. Long, and on March 30, 1926, his likeness in marble was unveiled in Statuary Hall in the Capitol Building in Washington. Members of the profession can arrange for first day cancellation of the special stamp on official covers arranged by citizens of Jefferson by writing to Mrs. H. I. Mobley, cachet chairman, Jefferson, Ga.

SURGEON GENERAL'S LIBRARY

Constantly in abeyance for almost a decade has been the proposal to erect a new building for the Army Medical Library and Museum in Washington, D. C. Now the path has been cleared, a site has been found near the Library of Congress, and all that is necessary is the final appropriation. The collection of medical works in the Army Medical Library is one of the finest in the world; indeed, it is thought by many to deserve the absolute superlative. Yet it is housed today in an ancient structure, a veritable fire trap, in which an accident of some type might bring about a catastrophic destruction of material which could never be replaced. Certainly if ever a need existed for expenditure of money for some real purpose, it exists in relation to the necessity for building a new home for this invaluable scientific medical collection. Recently the Librarian of Congress, Archibald MacLeish, was asked his opinion of the Army Medical Library. His reply was "The Surgeon General's Library is one of the greatest special collections of books ever put together, if not indeed the greatest, and its present lack of housing holds tragic possibilities for American learning and for the good repute of American learning." In the very near future Congressional hearings will be held on this project. Every physician may well afford to lend his voice to the appeal for immediate action.

ORGANIZATION SECTION

COURT OF APPEALS UPHOLDS A. M. A. INDICTMENT

UNITED STATES COURT OF APPEALS
FOR THE DISTRICT OF COLUMBIA
No. 7488

UNITED STATES OF AMERICA, APPELLANTS,
v.
AMERICAN MEDICAL ASSOCIATION, A CORPORATION,

THE MEDICAL SOCIETY OF THE DISTRICT OF COLUMBIA, A CORPORATION, HARRIS COUNTY MEDICAL SOCIETY, AN ASSOCIATION, ET AL., APPELLEES

Appeal from the District Court of the United States for the District of Columbia

(Argued January 12, 1940 Decided March 4, 1940)

Thurman Arnold, Assistant Attorney General, and *John Henry Lewin*, Special Assistant to the Attorney General, both of Washington, D. C., for appellants.

William E. Leahy, Seth W. Richardson, John E. Laskey, Charles S. Baker, all of Washington, D. C., and *Edward M. Burke*, of Chicago, Illinois, for appellees.

Before GRONER, C. J., and MILLER and VINSON, JJ.

GRONER, C. J.: This appeal is taken from a judgment of the United States District Court sustaining a demurrer to an indictment for conspiracy in restraint of trade in the District of Columbia, in violation of Sec. 3 of the Sherman Anti-trust Act.[1]

The main purpose of the conspiracy as shown in the indictment was to impair or destroy the business and activities of Group Health Association, Inc., which had been organized in 1937 as a nonprofit cooperative association for the provision of medical care and hospitalization to its members and their dependents. The indictment is very long but, summarized, charges as follows:

Group Health is an association of employees of certain executive departments of the Government employed in the District of Columbia, 80 per cent earning annual incomes not over $2,000. The association provides medical care and hospitalization to its members and their dependents on a risk sharing prepayment basis. Its funds are collected monthly in the form of dues. Medical care is provided by its medical staff, consisting of salaried physicians under the sole direction of a medical director. It provides a modern clinic and defrays, within certain limits, the expenses of hospitalization of its members and their dependents. The personal relationship ordinarily existing between doctor and patient exists between Group Health doctors and Group Health patients.

Defendant American Medical Association is a corporation, with a membership of 110,000 out of the total of 145,000 physicians in the United States. It is the only important national society representative of the medical profession in the country. It maintains a "Bureau of Medical Economics," which has taken a leading part in carrying out the Association's policy of discouraging and suppressing group medical practice on a risk sharing prepayment basis.

Defendant The Medical Society of the District of Columbia is a constituent society of American. Defendant Harris County Medical Society is a component society of American. Members of constituent and component societies are *ipso facto* members of American. Washington Academy of Surgery is an unincorporated association with its office in the District of Columbia. Of the individual defendants, five were officers of American, and the others members of District Society, most of the latter being officers or else members of the executive and hospital committees of the Society or members of the regular staffs of Washington City hospitals. American Association and District Society possess power to exclude a doctor, disapproved by them, from attending and treating his patients in the Washington hospitals, which include all the hospitals in the District of Columbia in which private patients may be treated by doctors. By enforcing their rules of ethics and expelling members, they may deprive them of the essential privilege of consultation with other members. By granting or refusing approval of hospitals, they can control the ability of hospitals to obtain interns, and by threatening hospitals with the exercise of this power they may control the members of medical staffs in each. To carry out these powers, on November 3, 1937, District Society adopted the following resolution:

WHEREAS, The Medical Society of the District of Columbia has an apparent means of hindering the successful operation of Group Health Association, Inc., if it can prevent patients of physicians in its employ being received in the local private hospitals; and

WHEREAS, The Medical Society of the District of Columbia has no direct control over the policies of such hospitals as determined by their lay boards of directors, except through its control of its own members serving on their medical staffs; and

WHEREAS, Conflicts between the Medical Society of the District of Columbia and any local hospitals arising from an attempt to enforce the provisions of chapter IX, article IV, section 5, of its constitution should be assiduously avoided, if possible, because of the unfavorable publicity that would accrue to its own members; therefore, be it

Resolved, That the Hospital Committee be, and is hereby, directed to give careful study and consideration to all phases of this subject and report back to the Society, at the earliest practicable date, its recommendations as to the best way of bringing this question to the attention of the medical boards and boards of directors of the various local hospitals in such a manner as to insure the maximum amount of practical accomplishment with the minimum amount of friction and conflict.

Subsequently, the conspiracy was discussed at meetings held by members and committees of District Society, with the purpose of "hindering" Group Health from procuring and retaining on its medical staff quali-

1. 26 Stat. 209, 15 U. S. C. 3.

parable population in the world. In the two European nations with the lowest death rates, the Netherlands has only a system of cash benefits in its system of compulsory sickness insurance and Sweden has only a voluntary system of sickness insurance.

RESPIRATORY ALLERGY IN CHILDREN AND TONSILLECTOMY

The simulation of diseases by pseudosyndromes may confuse the clinical picture, mislead diagnosis and contribute to therapeutic error. Frequent colds, sinusitis, bronchitis and recurrent pneumonias in children are generally considered infectious and related to reservoirs of infection in the tonsils. Consequently tonsillectomy is often prescribed. According to *Public Health Reports* 1,235,000 tonsillectomies are performed each year in the United States. Hansel and Chang [1] now point out that signs and symptoms of respiratory abnormality in the upper tract may frequently be due to an allergic factor simulating the infectious etiology discoverable in the majority of such cases. Hence the proper diagnosis of respiratory diseases centers for them in careful clinical and laboratory examinations that are based on the threefold possibility of an allergic agent, an infective agent and an allergic phase obscured by acute or chronic infections. Ultimate diagnostic determination is achieved by a differential test.

In an examination of 200 unselected children between the ages of 3 and 16, of whom 104 were boys and ninety-six girls, observed at the clinic of the Washington University School of Medicine in St. Louis in July, August and September 1938, the authors discovered twenty-six cases of nasal allergy, equivalent to 13 per cent of the whole group. In only half of the twenty-six were local nasal symptoms typical. A positive family history of allergy was noted in eleven (42 per cent). Only fourteen (54 per cent) showed typical pallor or edema of the nasal mucosa. Seventeen of the twenty-six had had an acute infectious disease (such as measles, scarlet fever or pertussis). Six of the twenty-six had hay fever when examined. Final diagnosis was based on the demonstration of eosinophils in the nasal secretions. The authors believe that, in the absence of hay fever and asthma, nasal allergy and allergic bronchitis frequently elude diagnosis and that tonsillectomy is often recommended because allergic symptoms are mistaken for those of an infectious origin.

Hansel and Chang estimate that about 160,000 allergic patients (13 per cent of the annual total of more than a million and a quarter of tonsillectomized persons) are unnecessarily subjected to tonsillectomy every year. They note sequels of tonsillectomies performed on allergic children, such as excessive regrowth of lymphoid tissue in the tonsillar fossae and aggravation of allergic symptoms. Children with nasal allergy, allergic involvement of the sinuses, allergic bronchitis and allergic pneumonia are not favorably influenced by tonsillectomy. They caution against the removal of tonsils and adenoids in allergic children during hay fever and against recourse to tonsillectomy with the idea of alleviating allergic symptoms. Indications for tonsillectomy in children with nasal allergy should be the same as those in children without nasal allergy.

1. Hansel, French K., and Chang, C. S.: Relation of Allergy and Tonsillectomy in Children, Arch. Otolaryng. 31:45 (Jan.) 1940.

Current Comment

FIRST DAY SALE OF THE CRAWFORD LONG MEMORIAL STAMP

A new postage stamp commemorating Dr. Crawford W. Long as the discoverer of ether anesthesia will be issued by the Post Office Department, April 8. The first day sale of the two-cent stamp will be held at Jefferson, Ga., where ether was first used as an anesthetic for a surgical operation, March 30, 1842. This operation was for the removal of a tumor from the neck of James M. Venable. Four witnesses were present, one of whom was Dr. Edward S. Rawls. Dr. Long discussed the possibilities of ether as an anesthetic with his fellow physicians. The Universities of Georgia and Pennsylvania, where Dr. Long studied, have provided memorials, and monuments have been erected in his native Danielsville and at Jefferson, Ga. A hospital in Atlanta has been named in honor of Dr. Long, and on March 30, 1926, his likeness in marble was unveiled in Statuary Hall in the Capitol Building in Washington. Members of the profession can arrange for first day cancellation of the special stamp on official covers arranged by citizens of Jefferson by writing to Mrs. H. I. Mobley, cachet chairman, Jefferson, Ga.

SURGEON GENERAL'S LIBRARY

Constantly in abeyance for almost a decade has been the proposal to erect a new building for the Army Medical Library and Museum in Washington, D. C. Now the path has been cleared, a site has been found near the Library of Congress, and all that is necessary is the final appropriation. The collection of medical works in the Army Medical Library is one of the finest in the world; indeed, it is thought by many to deserve the absolute superlative. Yet it is housed today in an ancient structure, a veritable fire trap, in which an accident of some type might bring about a catastrophic destruction of material which could never be replaced. Certainly if ever a need existed for expenditure of money for some real purpose, it exists in relation to the necessity for building a new home for this invaluable scientific medical collection. Recently the Librarian of Congress, Archibald MacLeish, was asked his opinion of the Army Medical Library. His reply was "The Surgeon General's Library is one of the greatest special collections of books ever put together, if not indeed the greatest, and its present lack of housing holds tragic possibilities for American learning and for the good repute of American learning." In the very near future Congressional hearings will be held on this project. Every physician may well afford to lend his voice to the appeal for immediate action.

ORGANIZATION SECTION

COURT OF APPEALS UPHOLDS A. M. A. INDICTMENT

UNITED STATES COURT OF APPEALS
FOR THE DISTRICT OF COLUMBIA
No. 7488

UNITED STATES OF AMERICA, APPELLANTS,
v.
AMERICAN MEDICAL ASSOCIATION, A CORPORATION,

THE MEDICAL SOCIETY OF THE DISTRICT OF COLUMBIA, A CORPORATION, HARRIS COUNTY MEDICAL SOCIETY, AN ASSOCIATION, ET AL., APPELLEES

Appeal from the District Court of the United States for the District of Columbia

(Argued January 12, 1940 Decided March 4, 1940)

Thurman Arnold, Assistant Attorney General, and *John Henry Lewin*, Special Assistant to the Attorney General, both of Washington, D. C., for appellants.

William E. Leahy, Seth W. Richardson, John E. Laskey, Charles S. Baker, all of Washington, D. C., and *Edward M. Burke*, of Chicago, Illinois, for appellees.

Before GRONER, C. J., and MILLER and VINSON, JJ.

GRONER, C. J.: This appeal is taken from a judgment of the United States District Court sustaining a demurrer to an indictment for conspiracy in restraint of trade in the District of Columbia, in violation of Sec. 3 of the Sherman Anti-trust Act.[1]

The main purpose of the conspiracy as shown in the indictment was to impair or destroy the business and activities of Group Health Association, Inc., which had been organized in 1937 as a nonprofit cooperative association for the provision of medical care and hospitalization to its members and their dependents. The indictment is very long but, summarized, charges as follows:

Group Health is an association of employees of certain executive departments of the Government employed in the District of Columbia, 80 per cent earning annual incomes not over $2,000. The association provides medical care and hospitalization to its members and their dependents on a risk sharing prepayment basis. Its funds are collected monthly in the form of dues. Medical care is provided by its medical staff, consisting of salaried physicians under the sole direction of a medical director. It provides a modern clinic and defrays, within certain limits, the expenses of hospitalization of its members and their dependents. The personal relationship ordinarily existing between doctor and patient exists between Group Health doctors and Group Health patients.

Defendant American Medical Association is a corporation, with a membership of 110,000 out of the total of 145,000 physicians in the United States. It is the only important national society representative of the medical profession in the country. It maintains a "Bureau of Medical Economics," which has taken a leading part in carrying out the Association's policy of discouraging and suppressing group medical practice on a risk sharing prepayment basis.

Defendant The Medical Society of the District of Columbia is a constituent society of American. Defendant Harris County Medical Society is a component society of American. Members of constituent and component societies are *ipso facto* members of American. Washington Academy of Surgery is an unincorporated association with its office in the District of Columbia. Of the individual defendants, five were officers of American, and the others members of District Society, most of the latter being officers or else members of the executive and hospital committees of the Society or members of the regular staffs of Washington City hospitals. American Association and District Society possess power to exclude a doctor, disapproved by them, from attending and treating his patients in the Washington hospitals, which include all the hospitals in the District of Columbia in which private patients may be treated by doctors. By enforcing their rules of ethics and expelling members, they may deprive them of the essential privilege of consultation with other members. By granting or refusing approval of hospitals, they can control the ability of hospitals to obtain interns, and by threatening hospitals with the exercise of this power they may control the members of medical staffs in each. To carry out these powers, on November 3, 1937, District Society adopted the following resolution:

WHEREAS, The Medical Society of the District of Columbia has an apparent means of hindering the successful operation of Group Health Association, Inc., if it can prevent patients of physicians in its employ being received in the local private hospitals; and

WHEREAS, The Medical Society of the District of Columbia has no direct control over the policies of such hospitals as determined by their lay boards of directors, except through its control of its own members serving on their medical staffs; and

WHEREAS, Conflicts between the Medical Society of the District of Columbia and any local hospitals arising from an attempt to enforce the provisions of chapter IX, article IV, section 5, of its constitution should be assiduously avoided, if possible, because of the unfavorable publicity that would accrue to its own members; therefore, be it

Resolved, That the Hospital Committee be, and is hereby, directed to give careful study and consideration to all phases of this subject and report back to the Society, at the earliest practicable date, its recommendations as to the best way of bringing this question to the attention of the medical boards and boards of directors of the various local hospitals in such a manner as to insure the maximum amount of practical accomplishment with the minimum amount of friction and conflict.

Subsequently, the conspiracy was discussed at meetings held by members and committees of District Society, with the purpose of "hindering" Group Health from procuring and retaining on its medical staff quali-

1. 26 Stat. 209, 15 U. S. C. 3.

fied doctors by threatening with disciplinary action any members of District Society who should either join Group Health's staff or consult with physicians on its staff, and with the purpose of hindering and obstructing members of Group Health from obtaining access to hospital facilities and obstructing the doctors on its staff from treating and operating on patients in Washington hospitals, and for the purpose of inducing Washington hospitals to boycott Group Health and its doctors. A "white list" of approved organizations, groups and individuals was circulated, with the name of Group Health omitted—all for the purpose of threatening with disciplinary action any member of the District Society who worked for Group Health or consulted with any doctor on its staff and any hospital which admitted any Group Health doctor to its courtesy staff—the general purpose of the conspiracy being to restrain doctors in the District of Columbia in the pursuit of their calling and to restrain the hospitals in the operation of their business and to destroy Group Health in the performance of its functions. Disciplinary action was taken against two District Society members on Group Health's staff. One was induced to resign from the staff, the other was expelled from the society. Harris County Society opened disciplinary action against one of its members on the staff. District Society opened disciplinary action against a specialist who consulted with a Group Health doctor. Demand was made on the hospitals that they receive only members of the American Medical Association on their staffs. On recommendation of Washington Academy of Surgery, a surgeon was excluded from hospital staffs principally because he was working for Group Health. By threatening to deprive another doctor of courtesy staff privileges, defendants induced a Group Health doctor to resign his position.

The conspiracy is charged to have had as its background the long continued policy of opposition on the part of American Medical Association to risk sharing plans for medical service, growing out of the fear of its members of business competition from doctors connected with such organizations. Each defendant is charged to have knowingly participated in the formation and furtherance of the plan pursuant to the common purpose.

The several defendants demurred on a number of grounds, attaching not only the substance but the form of the indictment.

The District Court sustained the demurrer (1) because the practice of medicine is not a trade within the meaning of sec. 3 of the Sherman Act; (2) because the indictment is vague and uncertain and fails to charge clearly commission of any crime.

The United States has appealed under the provisions of the Act of March 3, 1901, ch. 854, 31 Stat. 1225, 1341, D. C. Code 1929, tit. 6, sec. 355.

The case divides itself into three main problems:

1. Does the indictment charge a combination or conspiracy in restraint of "trade" as that term is used in sec. 3 of the Sherman Act?

2. If it does, is the restraint charged an unreasonable one which would be illegal under the act?

3. Is the indictment defective in form?

Sec. 3 of the statute reads as follows:

> Every contract, combination in form of trust or otherwise, or conspiracy, in restraint of trade or commerce in . . . the District of Columbia . . . is hereby declared illegal. Every person who shall make any such contract or engage in any such combination or conspiracy, shall be deemed guilty of a misdemeanor, and, on conviction thereof, shall be punished by fine not exceeding five thousand dollars, or by imprisonment not exceeding one year, or by both said punishments, in the discretion of the court.

The trial court was of opinion that the practice of medicine and the business of Group Health and the hospitals do not constitute "trade" within the intent of the statute. The question is new, at least to the extent that there is no case in which, in the circumstances existing here, it has been decided, but a careful consideration of the language of the act, its legislative background and the various statements of the Supreme Court concerning the source from which the congressional purpose may be gathered, leads us to conclude the trial court was in error.

The phrase "restraint of trade" had its genesis in the common law, and its legal import and significance is declared again and again in the decisions of English courts, both before and after the date of our independence, as well as in American decisions in many of the states. The Supreme Court has said that Congress passed the Sherman Act with this common law background in mind. And so in the *Standard Oil* case,[2] Chief Justice White traces its use to the common law. Thus, at the top of page 51, he says:

> It is certain that those terms, at least in their rudimentary meaning, took their origin in the common law and were also familiar in the law of this country prior to and at the time of the adoption of the act in question.

And again:

> It is certain that at a very remote period the words "contract in restraint of trade" in England came to refer to some voluntary restraint put by contract by an individual on his right to carry on his trade or calling. Originally all such contracts were considered to be illegal, because it was deemed they were injurious to the public as well as to the individuals who made them.

And still again (p. 59):

> Let us consider the language of the first and second sections guided by the principle that where words are employed in a statute which had at the time a well known meaning at common law or in the law of this country they are presumed to have been used in that sense unless the context compels to the contrary.
>
> . . . . . .
>
> In view of the common law and the law in this country as to restraint of trade, which we have reviewed, and the illuminating effect which that history must have under the rule to which we have referred, we think it results:
> (a) That the context manifests that the statute was drawn in the light of the existing practical conception of the law of restraint of trade, because it groups as within that class, not only contracts which were in restraint of trade in the subjective sense, but all contracts or acts which theoretically were attempts to monopolize, yet which in practice had come to be considered as in restraint of trade in a broad sense.

Similar statements are to be found in *United States* v. *American Tobacco Co.*, 221 U. S. 106, 179; *Nash* v. *United States*, 229 U. S. 373, 377; *Eastern States Retail Lumber Dealers Ass'n* v. *United States*, 234 U. S. 600, 610; *United States* v. *Addyston Pipe & Steel Co.*, 85 *Fed.* 271, 278-9, aff'd 175 U. S. 211;

2. 221 U. S. 1, 50-60.

United States Tel. Co. v. *Central Union Tel. Co.*, 202 Fed. 66, 70. There are like statements in the debates in Congress. 21 Con. Rec. 3146, 3148, 3152. And see Judge Taft's opinion in the *Addyston Pipe Co.* case, where he said:

> It is certain that, if the contract of association which bound the defendants was void and unenforceable at the common law because in restraint of trade, it is within the inhibition of the statute. . . .

In *Leonard* v. *Abner-Drury Brewing Co.*, 25 App. D. C. 161, 174, we said as much with respect to sec. 3 of the act. It must, therefore, be considered that the scope of "restraint of trade" in sec. 3 is to be measured by its use at common law.

The common law rule was applied principally to contracts whereby a man promised not to engage in his occupation, including the practice of medicine, and in many English cases such a restraint on the practice of medicine was described as a contract in "restraint of trade." Defendants contend, however, that whatever the English usage, the word "trade" had in this country a definite and well understood meaning, and as used in the Sherman Act was confined to transportation and the buying, selling, or exchanging of commodities and in any case was not intended to apply to any employment or business carried on by the "learned professions." The determination of this aspect of our problem lies in the answer to this proposition.

In *Atlantic Cleaners & Dyers* v. *United States*, 286 U. S. 427, it was held the words "trade" and "commerce" had a broader meaning in sec. 3 of the act than in sec. 1 and that, under the paramount power of Congress to legislate for the District of Columbia, the use of the words in that section should be held to embrace the exercise of that paramount power to its fullest extent.—

> We are, therefore, free to interpret § 3 dissociated from § 1 as though it were a separate and independent act and, thus viewed, there is no rule of statutory construction which prevents our giving to the word "trade" its full meaning, or the more extended of two meanings, whichever will best manifest the legislative purpose.
> (p. 435.)

Cleaners and dyers in the District had formed a combination to keep up prices, and the United States brought suit to enjoin the agreement and reestablish competition. The defendants insisted their arrangement was not a violation of sec. 3 because they were not engaged in trade, relying on *National League Clubs* v. *Federal Baseball Clubs*, 50 App. D. C. 165, 168, holding that "trade" connotes the transfer of something, "whether it be persons, commodities, or intelligence from one place or person to another." The opinion ignored the citation, doubtless because the baseball case was brought under section 1—the interstate commerce section of the act—and Justice Sutherland, who wrote the opinion, rejected this restricted definition as applied to sec. 3. In support of a definition to include the cleaning business, he quoted from Justice Story's opinion in *The Nymph*, 18 Fed. Cas. 506, No. 10,388:

> . . . the word "trade" is often and, indeed, generally used in a broader sense, as equivalent to occupation, employment, or business, whether manual or mercantile. Wherever any occupation, employment, or business is carried on for the purpose of profit, or gain, or a livelihood, *not in the liberal arts or in the learned professions*, it is constantly called a trade.

The learned trial judge felt that the italicized words should be regarded as an authoritative statement of the Supreme Court that the professions were not trades and therefore not within the intent of the act. But we think this by no means follows. The court had before it only the problem whether "trade" was broad enough to include the cleaning and dyeing of clothes, and held it was. To reinforce its reasoning, the court quoted language which happened to exclude the learned professions, but this limitation was not responsive to the question at hand and was purely casual, and in the circumstances ought not, we think, to be regarded as a proper guide in deciding the important question in this case.

The same might be said of *Fed. Trade Com.* v. *Raladam Co.*, 283 U. S. 643, where Justice Sutherland said that physicians followed a profession and not a trade. He was dealing with a case of interstate commerce and simply pointed out the obvious fact that doctors were not in the patent medicine trade, and could not be in competition with vendors of medicine within the sense of the Trade Commission Act. There, he was using the word "trade" in its narrowest sense, a restriction which, as we have seen, he later rejected in regard to sec. 3 of the Sherman Act.

The common law cases which shed light on the question are all of a type. A physician, a surgeon, or a dentist has an established practice in a community. He takes on an assistant, or a partner, or else sells his practice to another of his own profession. In the first two cases he wants to protect his own practice, and in the third case the buyer wants protection from subsequent competition by the seller. Consequently, the assistant, or partner, or seller, as the case may be, promises for a consideration not to practice within the community or within a designated distance. This promise is a voluntary restraint on the pursuit of a man's calling, and in the circumstances, the public policy described by Chief Justice White in the *Standard Oil* case becomes involved. The restraint will be upheld only if it (1) is partial; (2) is made for an adequate consideration; and (3) is reasonable as a protection of the good will of another's professional practice. *Holbrook* v. *Waters*, 9 How. Prac. (N. Y.) 335.

In England such a contract was constantly referred to as involving the doctrine of "restraint of trade." See *Davis* v. *Mason*, 5 T. R. 118, 101 Eng. Rep. 69; *Hayward* v. *Young*, 2 Chitty 407; *Atkyns* v. *Kinnier*, 4 Ex. 776, 154 Eng. Rep. 1429; *Gravely* v. *Barnard*, L. R. 18 Eq. 518. In all of the above the lawyers who raised the point and the judges who passed on it referred to the public policy as the doctrine of restraint of trade, contracts in restraint of trade, or in partial restraint of trade. In *Horner* v. *Graves*, 7 Bing. 735, 131 Eng. Rep. 284, defendant had promised not to practice within 100 miles of York. The opinion of Tindall, C. J., recognizes the occupation of surgeon-dentist as a profession, but in considering the validity of the contract he uses the words "profession," "business" and "trade" interchangeably.

American cases decided before passage of the Sherman Act recognize and follow the reasoning of these English cases. See *Cook* v. *Johnson*, 47 Conn. 175, which involved a dentist's contract. There the court said that it belonged to the class of contracts in restraint of trade. To the same effect, see *Haldeman* v. *Simon-*

ton, 55 Iowa 144, 7 N. W. 439; *Gilman* v. *Dwight*, 13 Gray (Mass.) 356, 359. In the case last named the court said:

> There is nothing in the nature of the business or profession to which the contract relates, which takes it out of the ordinary rules applicable to contracts in partial restraint of trade. The cases are numerous in the books, in which similar contracts entered into by attorneys, solicitors, apothecaries, dentists and surgeons have been upheld and enforced.

See also *Dwight* v. *Hamilton*, 113 Mass. 175, and *Mandeville* v. *Harmon*, 42 N. J. Eq. 185, 7 Atl. 37. More modern cases are *Webster* v. *Williams*, 62 Ark. 101, 34 S. W. 537; *Rakestraw* v. *Lanier*, 104 Ga. 188, 30 S. E. 735; *Gordon* v. *Mansfield*, 84 Mo. App. 367; *State* v. *Calhoun* (Mo. App.), 231 S. W. 647; *Greenfield* v. *Getman*, 140 N. Y. 168, 35 N. E. 435; *Hulen* v. *Earel*, 13 Okla. 246, 73 Pac. 927; *Turner* v. *Abbott*, 116 Tenn. 718, 94 S. W. 64; *Randolph* v. *Graham* (Texas Civ. App.) 254 S. W. 402; *Erikson* v. *Hawley*, 56 App. D. C. 268, 12 F. 2d 491; and in *Styles* v. *Lyon*, 87 Conn. 23, 86 Atl. 564, the court said:

> The defendant insists there is a distinction between a business and a profession; that, while the period of restriction as to a business may be unlimited, the rule should not apply to a profession, since it is a purely personal relation whose benefits cease upon death or the cessation from practice. We do not think the distinction tenable. A profession partakes on its financial side of a commercial business and its good will is often a valuable asset.

The indubitable effect of all these cases, English and American is to enlarge the common acceptation of the word "trade" when embraced in the phrase "restraint of trade" to cover all occupations in which men are engaged for a livelihood. We think it makes no difference that, after the practice of medicine had been recognized as embraced in the doctrine of "restraint of trade," *Davis* v. *Mason, supra*, a number of judges preferred to speak in broader terms of "public policy" and the like, without using the word "trade."[3] The foundation of the rule in restraint of trade cases is the rule of public policy, and always was from *Mitchel* v. *Reynolds*, [1711] 1 P. Wms. 181, 24 Eng. Rep. 347, on down, without distinction based on type of occupation involved.

Perhaps the most illuminating of the English cases is *Pratt* v. *British Medical Association*, [1919] 1 K. B. 244. The case was a tort action to recover damages for molesting plaintiff doctors in the pursuit of their calling. The facts there and here are strikingly similar. The plaintiffs had joined the staff of an organization known as Coventry Provident Dispensary, which had fallen under the ban of the medical society because the members of the latter were opposed to what was called contract practice. The doctors who joined the staff of the organization were expelled from the society for violation of its rules of ethics and other members of the society were forbidden to consult with them on pain of expulsion. A "black list" was published in the *British Medical Journal*, and the court found that the effect was to boycott the plaintiffs in their practice, greatly to their injury, and likewise that the purpose of the boycott was to increase the area of practice and the financial returns of the members of the society. On this subject the court said (p. 272):

> If the Coventry Dispensary had been destroyed as a lay organization, then the local doctors could obviously have taken such steps as would have increased their area of private practice, and their emoluments would have gained a corresponding expansion. This was the fundamental object of the defendants. The nonparticipation in such aim by the plaintiffs was the head and front of their offending.

And considering the validity of the action of the defendants and their right by means of their own rules or canons to impose a restraint on nonconforming physicians, the court said (p. 274):

> The public interests must be regarded conjointly with the interests of individuals when restraint of trade is in question. Recent illustrative decisions will be found in *Neville* v. *Dominion of Canada News Co.* (2) and *Horwood* v. *Millar's Timber and Trading Co.* (3) The doctrine of "restraint of trade" has been applied in many directions. The restraint may exist in a contract between two parties, or in rules purporting to bind many individuals. See, for example, *Hilton* v. *Eckersley* (4); *Hornby* v. *Close* (5); *Old* v. *Robson* (6); and *Cullen* v. *Elwin*. (7) Many decisions were considered in the well known case of *Russell* v. *Amalgamated Society of Carpenters and Joiners*. (8) On considering the rules in question I have arrived at the conclusion that they are in restraint of trade, and are void on the ground of public policy. They gravely, and in my view unnecessarily, interfere with the freedom of medical men in the pursuit of their calling, and they are, I think, injurious to the interests of the community at large. It may well be that the opinion I have just expressed will, if upheld, destroy the cogency of the defendants' scheme of boycott; but it leaves them with the safe and more kindly weapons of legitimate persuasion and reasoned argument.[4]

The critical comments contained in *Ware and De Freville, Ltd.* v. *Motor Trade Association*, [1921] 3 K. B. 40, do not overrule or disapprove the basic doctrine of the *Pratt* case, and are directed solely at some of its language on matters not pertinent here.

We think enough has been said to demonstrate that the common law governing restraints of trade has not been confined, as defendants insist, to the field of commercial activity ordinarily defined as "trade," but embraces as well the field of the medical profession. And since, as we think, we are required by the decisions of the Supreme Court to look to the common law as the chart by which to determine the class and scope of offenses denounced in sec. 3, it follows that we must hold that a restraint imposed on the lawful practice of medicine and—*a fortiori*—on the operation of hospitals and of a lawful organization for the financing of medical services to its members, is just as much in restraint of trade as if it were directed against any other occupation or employment or business. And, of course, the fact that defendants are physicians and medical organizations is of no significance, for sec. 3 prohibits "any person" from imposing the proscribed restraints. Congress did not provide that one class, any more than another, might impose restraints or that one class, any more than another, might be subjected to restraint.

This brings us, then, to consider whether the indictment shows unreasonable restraints.

3. *McCurry* v. *Gibson*, 108 Ala. 451, 18 So. 806; *Frendenthal* v. *Espey*, 45 Colo. 488, 102 Pac. 280; *Linn* v. *Sinclair*, 67 Ill. 75; *Ryan* v. *Hamilton*, 205 Ill. 191, 68 N. E. 781; *Storer* v. *Brock*, 351 Ill. 643, 184 N. E. 868; *Martin* v. *Murphy*, 129 Ind. 464, 28 N. E. 1118; *Proctor* v. *Hansel*, 205 Iowa 542, 218 N. W. 255; *Mills* v. *Ressler*, 87 Kan. 549, 125 Pac. 58; *Warfield* v. *Booth*, 33 Md. 63; *Granger* v. *Craven*, 159 Minn. 296, 199 N. W. 10; *Thompson* v. *Means*, 19 Miss. 604; *Tarry* v. *Johnston*, 114 Neb. 496, 208 N. W. 615; *Mott* v. *Mott*, 11 Barb. (N. Y.) 127; *Holbrook* v. *Waters*, 9 How. Prac. (N. Y.) 335; *Foster* v. *White*, 248 App. Div. 451, 290 N. Y. Supp. 394; *Threlkeld* v. *Steward*, 24 Okla. 403, 103 Pac. 630; *McClurg's Appeal*, 58 Pa. St. 51; *French* v. *Parker*, 16 R. I. 219, 14 Atl. 870; *Butler* v. *Burleson*, 16 Vermont 176; *Madson* v. *Johnson*, 164 Wis. 612, 160 N. W. 1085.

4. Footnote citations in the British report as follows: (2) [1915] 3 K. B. 556. (3) [1917] 1 K. B. 305. (4) (1855) 6 E. & B. 47. (5) (1867) L. R. 2 Q. B. 153. (6) (1890) 62 L. T. 282. (7) (1904) 90 L. T. 840. (8) [1912] A. C. 421.

The charge, stated in condensed form, is that the medical societies combined and conspired to prevent the successful operation of Group Health's plan, and the steps by which this was to be effectuated were as follows: (1) to impose restraints on physicians affiliated with Group Health by threat of expulsion or actual expulsion from the societies; (2) to deny them the essential professional contacts with other physicians; and (3) to use the coercive power of the societies to deprive them of hospital facilities for their patients. Sufficient facts are stated to demonstrate that, unchecked, this exertion of power will necessarily accomplish the abandonment of the cooperative plan of medical service, as well as destroy the livelihood of dissident doctors, because the general restraint thus applied would make impossible the continued operation of the one or the successful practice of medicine by the others.

Defendants say that what they are charged with doing amounts to no more than the regulation of membership in the society and the selection of the persons with whom they wish to associate; that under their rules disobedient members may lawfully be disciplined and that disciplination does not amount to unreasonable restraint. This may very well be true, and in considering the contention we are not unmindful of the importance of rules of conduct in medical practice, rules which can best be made by the profession itself. We recognize, in common with an almost universal public opinion, that in the last half century, through this means, the quack and the charlatan have been largely deprived of the opportunity of preying on the unfortunate and the credulous. We also recognize that in personal conduct and in professional skill the rules and canons, so established, have aided in raising the standards of medical practice to the advantage of the whole country. We are mindful of a generally known fact that under these rules and standards there has developed an *esprit de corps* largely as a result of which the members of the profession contribute a considerable portion of their time to the relief of the unfortunate and the destitute. All of which may well be acknowledged to their credit. Notwithstanding these important considerations, it cannot be admitted that the medical profession may through its great medical societies, either by rule or disciplinary proceedings, legally effectuate restraints as far reaching as those now charged. "An act harmless when done by one may become a public wrong when done by many acting in concert, for it then takes on the form of a conspiracy, and may be prohibited or punished, if the result be hurtful to the public or to the individual" against whom it is directed. *Eastern States Retail Lumber Dealers Ass'n* v. *United States*, 234 U. S. at p. 614. If there is any justification for the restraint, so as to make it reasonable as a regulation of professional practice, it must be shown in evidence as a defense, since it does not appear in the indictment.

Restraints prohibited by sec. 3 of the Sherman Act are those which unduly hinder a person from employing his talents, industry, or capital in any lawful undertaking and thus keep, the public from receiving goods and services as freely as it would without such restraints. Enough has been said to show that the restraint here charged would restrict the common liberty of Group Health, the doctors, and the hospitals from engaging in the pursuit of their respective functions. If on the trial the charge of confederation to this end is sustained, defendants' method of reaching their objective may be thereby defeated, but if the objective is wise—as they insist—they still have left, as was said by the English judge in the *Pratt* case, the safer and more kindly weapons of legitimate persuasion and reasoned argument. In the proper use of these, much, as we think, may be accomplished to avoid the growing movement toward professional regimentation. Or, this opportunity neglected, members of the medical associations in the District of Columbia perhaps may find in sec. 3, as we construe it, their only protection in the right to practice on a fee for service basis.

In the light of what has been said, we consider the numerous cases involving the reasonable operations of trade associations and trade unions as inapplicable. Organizations and rules which have as their purpose the improvement of conditions in any particular trade or occupation, and the regulation of relations between traders, are, as we have just pointed out, beneficial rather than detrimental to the public interest. But when these same organizations go so far as to impose unreasonable restraints on the operations in their field, they become subject to the prohibition of the Sherman Act. *Sugar Institute* v. *United States*, 297 U. S. 553, 597-600.

Appellees rely on the following state court decisions: *Harris* v. *Thomas* (Texas Civ. App.), 217 S. W. 1068; *Porter* v. *King County Medical Society*, 186 Wash. 410, 58 Pac. 2d 367; *Irwin* v. *Lorio*, 169 La. 1090, 126 So. 669; *Weyrens* v. *Scotts Bluff County Medical Society*, 133 Nebr. 814, 277 N. W. 378; *Strauss* v. *Marlboro County Hospital*, 185 S. C. 425, 194 S. E. 65; *Newton* v. *Board of Commissioners*, 86 Colo. 446, 282 Pac. 1068; *McDonald* v. *Massachusetts General Hospital*, 120 Mass. 432; *Branagan* v. *Buckman*, 67 Misc. 242, 122 N. Y. Supp. 610; and *Olander* v. *Johnson*, 258 Ill. App. 89. They insist these cases sustain the view that disciplinary action taken against one of their number by an association of physicians pursuant to its canons of ethics is permissible and does not violate the common rights either of the individual or of the public. We have examined these cases and are of opinion that, with the exception of the *Porter* and *Weyrens* cases, none is apposite. Those two cases do tend to sustain the actions of medical societies in their attempt to control the scale of medical fees, but in so far as they hold such action to be lawful and deny any right to the injured individual to obtain redress, we cannot accept them as binding or even persuasive authority in the decision of what is or is not lawful under the Sherman Act. The doctrine of restraint of trade was not involved in either case. In the *Weyrens* case, an expelled physician asked a court to order his reinstatement in his medical society, before he had exhausted his remedies within the organization. In the *Porter* case, a layman lost his job because defendants had induced his employers to close their business. The lawfulness of the inducements was considered solely in the light of what a society might do with respect to its membership and selfish motives were deemed immaterial. In our view, the Sherman Act must be applied with respect to public interests, and this raises broader issues than these two cases contain.

At the risk of tedious repetition, we repeat that the charge made here, and for the purposes of the demurrer admitted, is that the societies sought to restrain an association of persons of modest means from receiving medical services at lower cost and to coerce doctors and hospitals to this end. The charge may be wholly unwarranted and the facts, when they are disclosed on the

trial, may show an entirely different state of affairs, but for present purposes we must take the charge as though its verity were established; and in that light, it seems to us clear that the offense is within the condemnation of the statute. It certainly cannot be doubted that Congress intended to exert its full power, in the public interest, to set free from unreasonable obstruction the exercise of those rights and privileges which are a part of our constitutional inheritance, and these include immunity from compulsory work at the will of another, the right to choose an occupation, the right to engage in any lawful calling for which one has the requisite capacity, skill, material, or capital, and thereafter the free enjoyment of the fruits of one's labors. Congress undoubtedly legislated on the common law principle that every person has individually, and that the public has collectively, a right to require the course of all legitimate occupations in the District of Columbia to be free from unreasonable obstructions; and likewise in recognition of the fact that all trades, businesses and professions, which prevent idleness and exercise men in labor and employment for the benefit of themselves and their families and for the increase of their substance, are desirable in the public good and any undue restraint upon them is wrong and is immediate and unreasonable and, therefore, within the purview of the Sherman Act. For illustrations of this principle, see *Loewe* v. *Lawlor*, 208 U. S. 274; *Eastern States Lumber Dealers Assn.* v. *United States*, 234 U. S. 600; *Lawlor* v. *Loewe*, 235 U. S. 522; *Duplex Printing Co.* v. *Deering*, 254 U. S. 443; *Bedford Cut Stone Company* v. *Stone Cutters Association*, 274 U. S. 37; *Montague* v. *Lowry*, 193 U. S. 38; *United States* v. *Brims*, 272 U. S. 549.

In the *Eastern States* case, an association of retail lumber dealers, in a desire to protect their local retail trade against competition by wholesalers selling to consumers within local territory, agreed to report any information received by any one of them showing such sales by any wholesaler. This information when obtained was sent to the secretary of the association and if, upon investigation by a board, it was found to be true, the name of the wholesaler was placed on a list distributed among all the members. The purpose was to induce all retailers who received the list to withhold patronage from the offender. The Supreme Court held that the circulation of the list was in unreasonable restraint of commerce, since it influenced retailers with no personal grievance to cease trading with the offender.

> . . . the trade of the wholesaler with strangers was directly affected, not because of any supposed wrong which he had done to them, but because of the grievance of a member of one of the associations, who had reported a wrong to himself, which grievance when brought to the attention of others it was hoped would deter them from dealing with the offending party.

This practice, the court said, brought the act within the prohibited class of undue and unreasonable restraints. If what was proved there was unreasonable, what is charged here is so in a larger degree, since the effect in the present case on the activity to be restrained is more serious as well as more far reaching.

Defendants contend as a subsidiary argument that, without regard to whether the restraint would or would not be an illegal act ordinarily, it is not so in the present instance for the reason that Group Health as a corporation is itself illegally practicing medicine. The United States District Court decided to the contrary some time ago, in a suit for declaratory judgment.[5] There was no appeal, and the question, so far as we are concerned, may be said to be open. On this demurrer it is unnecessary, and indeed undesirable, that we should pass on it except to decide whether, as described in the indictment, Group Health is necessarily violating the law.

The practice of medicine in the District of Columbia is subject to licensing and regulation and, we think, may not lawfully be subjected "to commercialization or exploitation." As was well said in *People* v. *United Medical Service*, 362 Ill. 442, 200 N. E. 163, the practice of medicine requires something more than the financial ability to hire competent persons to do the actual work. And so it has been held under varying conditions, speaking generally, that where a corporation operates a clinic or hospital, employs licensed physicians and surgeons to treat patients, and itself receives the fee, the corporation is unlawfully engaged in the practice of medicine. This is true because it has been universally held that a corporation as such lacks the qualifications necessary for a license, and without a license, its activities become illegal.[6] It has also been said that the relationship of doctor and patient, well recognized in the law, would be destroyed by such an arrangement. On the other hand, some courts have drawn a distinction between practicing medicine and merely furnishing medical services.[7]

But in all the cases we have examined in which the practice has been condemned, the profit object of the offending corporation has been shown to be its main purpose, and in no case were the circumstances precisely like those described in the indictment, i. e., a nonprofit organization, conducted so that the proper doctor and patient relationship is preserved; prospective patients organized only for the purpose of providing a clinic and paying doctors and hospital service out of members' dues; a plan designed not to interfere with the doctor's loyalty to his patient so as to commercialize medicine in a way contrary to the best interests of patient or practice, or to subject the physician to the corporation's control and make his practice a corporate act. As thus described, it is no more than a group of persons, under corporate organization, contributing stated sums of money monthly for the payment of prospective medical services to the extent they may be required. In these respects, it differs from the medicine-practicing corporations which in many of the states have been held to be illegal. Without more, there-

5. *Group Health Assn., Inc.* v. *Moor*, 24 F. Supp. 445.

6. Cases holding that a corporation was practicing medicine, or dentistry, or surgery illegally are: *McMurdo* v. *Getter*, (Mass.) 10 N. E. 2d 139 (employer was vendor of eye glasses prescribed by doctor); *Pacific Insurance Co.* v. *Carpenter*, 10 Cal. App. 2d 592, 52 P. 2d 992 (employer was in the insurance business, making money out of premium profits); *State* v. *Boston System Dentists*, (Ind.) 19 N. E. 2d 949 (employer was a corporation authorized to engage in practicing dentistry and the salaried dentists were its servants for hire); *Winslow* v. *Kansas State Board*, 115 Kan. 450, 223 P. 308 (employer incorporated for the purpose of maintaining dental quarters, furnishing services of dentist, and selling dental equipment); *State* v. *Bailey Dental Co.*, 221 Iowa 781, 234 N. W. 260 (corporation maintaining dental offices); *People ex rel. Lederman* v. *Warden of City Prison*, 168 App. Div. 240, 152 N. Y. Supp. 977 (drug store employed physician to give free medical attention to its customers); *People* v. *Painless Parker Dentist*, 85 Colo. 304, 275 Pac. 928 (corporation furnishing dental services through its employee for its profit); *People* v. *United Medical Service*, 362 Ill. 442, 200 N. E. 157 (corporation furnishing medical service on a flat fee to customers for its own profit). See also *Hanson* v. *Siegel-Cooper Co.*, 167 N. Y. 244, 60 N. E. 597; *cf. In re Co-operative Law Co.*, 198 N. Y. 479, 92 N. E. 13.

7. *State Electro-Medical Institute* v. *State*, 74 Nebr. 40, 103 N. W. 1078; *Same* v. *Platner*, 74 Nebr. 23, 103 N. W. 1079; *Sager* v. *Lewin*, 128 Mo. App. 149, 106 S. W. 581.

fore, than now appears, we are unable to say that Group Health is illegally practicing medicine.

We come finally to the question whether the indictment is sufficient in form. The learned trial judge was of opinion it was not. He thought the indictment afflicted with vague and uncertain statements and lacking in material facts. On the argument in this court, appellees' contentions may be summarized as follows: that the indictment is generally indefinite, full of conclusions and opinions, and does not set out the offense with particularity; the allegations as to the background of the conspiracy and the power of the medical organizations are irrelevant; the character of Group Health and the business of the Washington hospitals are not properly shown; there is a variance between the risk sharing plans described in the background of the conspiracy and the description of the activities of Group Health; the averments as to the principles of medical ethics and the operation of the societies are insufficiently stated; there are no facts stated as to restraints on hospitals; the averment as to dates is insufficient; and there is no charge against the individual defendants.

We shall consider briefly these points.

It has been stated time and again as a fundamental rule that in an indictment all the essential elements of the offense must be averred with sufficient clearness and particularity to enable the accused to understand the nature of the charge against him and enable him intelligently to prepare to meet it, and to plead the result, whether conviction or acquittal, as his protection against another prosecution for the same offense. But the degree of particularity requisite to accomplish these purposes is all that is required. As we said in *Beard* v. *United States*, 65 App. D. C. 231, 234, 82 F. 2d 837, 840:

> R. S. Sec. 1025 [8] was enacted for the purpose of preventing miscarriage of justice through the application of technical rules in relation to matters of form in indictments, and it is now universally held that the sufficiency of a criminal pleading is to be determined by practical, rather than technical, considerations. Or, as the Supreme Court said, the rigor of the old common-law rules has yielded in modern practice to the general principle that formal defects not prejudicial will be disregarded. *Hagner* v. *United States*, 285 U. S. 427, 52 S. Ct. 417, 76 L. Ed. 861.

In *Nash* v. *United States*, 229 U. S. 373, 378, it was held that no overt acts need be charged in an indictment under the Sherman Act, and the cases under the act show that the indictments usually set out the organization of defendants, the extent of their control over the trade, their relations with each other, and the means whereby they conspired to perpetrate the restraint.[9] The indictment at hand contains these averments. It charges that all the defendants have engaged in a combination and conspiracy in restrain of trade. It sets out the place of the conspiracy and the plans of the conspirators and the means taken to make them effective. The restraint was to be imposed on Group Health, on physicians, and on Washington hospitals, and it is specifically stated that the conspiracy was to prevent doctors of Group Health from treating and operating on patients in the hospitals within the District of Columbia. The preamble to the resolution adopted by District Society, to which we have already referred, declares the society's apparent power of hindering Group Health if it can prevent patients of physicians in the employ of Group Health being received in the hospitals, and the indictment charges the subsequent circulation among the hospitals of the white list as the means to this end. This is a sufficient charge of a conspiracy to restrain the business of Group Health, the doctors, and the hospitals.

The "background" of the conspiracy as described in the indictment cannot, under any circumstances we can think of, be considered as prejudicial, and its relevancy, we think, is established by the opinion of the Supreme Court in *Chicago Board of Trade* v. *United States*, 246 U. S. at p. 238.

Allegations as to the power of the medical organizations are not irrelevant. They give to the conspiracy a significance in regard to restraining the practice of medicine, which it might not otherwise have, and are similar to allegations, in other indictments, of the control over a large amount of a particular trade.

The point that Group Health is not sufficiently described is answered in the paragraph of the indictment which sets out its incorporation, its purpose, its character, its activities, and its relationship to its members.

The alleged variance between the risk sharing plans described in the "background," which it is charged the American Medical Association habitually opposed, and the plan of Group Health, seems to us immaterial. The obvious purpose of the indictment is to charge that all risk sharing plans have been opposed and that the present restraint is merely another attack.

We think it was unnecessary to set out any more detailed facts as to the contents of the Principles of Medical Ethics and the operations of committees and society meetings. *Cf. Mercer* v. *U. S.*, 61 F. 2d 97, 98-9. It is enough to charge the conspiracy and the means used to effect the unlawful restraints. Overt acts are unnecessary. *Nash* v. *U. S., supra.*

There is a sufficient allegation of dates. The indictment, it is true, states the beginning of the conspiracy shortly prior to the incorporation of Group Health, but it also shows that it continued to the date of the presentation of the indictment. That is enough.

The final point is that there is no definite charge against the individual defendants. The indictment in the opening paragraph names the associations and persons made defendants. The individuals are stated as the persons "who will be referred to hereinafter as 'individual defendants'," and they are thereafter described in the succeeding paragraphs as members or officers in the societies and members in or officers of the hospitals or members on the staffs of the hospitals; and it is clear that their activities in the conspiracy are charged as done in their several stated capacities. All are charged with participation in the formation and furtherance of the conspiracy.

In view of the foregoing, we have no doubt that, reading the indictment as a whole, it states a case under sec. 3 of the Sherman Act.

Reversed and Remanded.

---

8. 18 U. S. C. A. 556.

9. *U. S.* v. *Patten*, 226 U. S. 525, 536-9; *U. S.* v. *Pac. & Arctic Ry. & Nav. Co.*, 228 U. S. 87, 88-94; *Knauer* v. *U. S.*, 237 Fed. 8; *U. S.* v. *Rintelen*, 233 Fed. 793; *U. S.* v. *New Departure Mfg. Co.*, 204 Fed. 107, 109-110; *U. S.* v. *Patterson*, 201 Fed. 697, 699-701, rev'd on other grounds but aff'd as to first count of indictment, 222 Fed. 599, cert. den. 238 U. S. 635; *Steers* v. *U. S.*, 192 Fed. 1, 6-7; *U. S.* v. *Swift*, 188 Fed. 92; *U. S.* v. *American Naval Stores*, 186 Fed. 592, rev'd on other grounds but aff'd as to indictment, 229 U. S. 373; *U. S.* v. *MacAndrews & Forbes*, 149 Fed. 823, 825-9; *United States* v. *National Malleable & Steel Casting Co.*, 6 F. 2d 40, 41; 3 Zdine's Fed. Crim. Proc. 40, 54.

LEGISLATION OF INTEREST TO PHYSICIANS CONSIDERED BY STATE LEGISLATURES IN 1939

PREPARED BY T. V. McDAVITT OF THE BUREAU OF LEGAL MEDICINE AND LEGISLATION

(Concluded from page 889)

TABLE OF CONTENTS

PAGE

V. RIGHTS AND DUTIES OF PRACTITIONERS 972
A. Rights and Privileges 972
Insuring Payment of Medical Bills.. 972
Liens for Physicians 972
Priority of Physicians' Claims Against Assets of Insolvent Decedent 972
Motor Vehicle Accident Compensation 972
Equal Rights for Practitioners of All Kinds 972
Right to Practice in Hospitals 972
Right to Treat Workmen's Compensation Cases 973
Right to Treat Relief Cases or to Participate in Public Health Programs 973
Venereal Prophylactics 973
Privileged Communications 973
Expert Witnesses 973
Limitation on Malpractice Actions.. 973
Right to Compound and Dispense Prescriptions 973
Right to Extract Teeth 973
Exemption from Occupational Tax.. 974
Right of Alleged Insane Person to Examination by Physician of Own Choice 974
B. Duties and Liabilities 974
Occupational Taxes 974
Gross Income or Receipt Tax 974
Reports of Wounds, Diseases and Defects 974
Instilling Prophylaxis Into Infants' Eyes 974
Designation of School of Practice... 974
Serologic Tests of Pregnant Women.. 974
Prohibition of Operation to Impede Identification 975
Limitation on Right to Dispense..... 975
Annual Renewal of Licenses..... 975
Limitation on Fee Charged..... 975
Blood Tests of Physicians..... 975
Written Diagnosis to be Given Patient Prior to Operation..... 975
Secret Remedies to be Revealed to State Board of Health..... 975

VI. ALLIED PROFESSIONS AND SUNDRY VOCATIONS..... 975
Dentistry 975
Nursing 976
Medical Technicians 976
Pharmacy 976
Chiropody 977
Optometry 977
Opticians—Ophthalmic Dispensing... 978

VII. HOSPITALS 978
A. Hospitals Generally..... 978
Contracts for Hospitalization; Hospitalization Insurance 978
Liens for Hospitals 978
Payment by State for Hospital Care 978
Facilities Available to Cultists..... 978
Licensing of All Private Hospitals.. 978
Hospital Employees 978
Reporting of Wounds, Injuries and Defects 978
Payment of Salaries to Interns..... 978
Hospital Records 979
Miscellaneous 979
Liability of Charitable Hospitals for Negligence of Employees..... 979
The Practice of Medicine by Hospitals 979
Supplying of Oxygen Tests by State 979
Liability for Injuries or Diseases of Employees 979
B. Particular Types of Private Hospitals.. 979
Maternity Hospitals 979
C. Governmental Hospitals 979
Facilities Available to Cultists..... 979
State Hospitals for the Treatment of Tuberculosis 979
State Hospitals for the Insane..... 979
State Psychiatric or Psychopathic Hospitals or Clinics..... 979
State Cancer Hospitals..... 979
State Orthopedic Hospitals..... 979
State Hospitals for the Treatment of Inebriates 980
State Hospitals for the Care and Treatment of Incurable Children 980
State Hospitals for the Treatment of Buerger's Disease 980
County General Hospitals..... 980
County Tuberculosis Hospitals..... 980
District Tuberculosis Hospitals..... 980
Municipal Hospitals 980

VIII. WORKMEN'S COMPENSATION LEGISLATION 980
A. New Act 980
B. Changes in Present Compensation Acts. 980
Injuries Compensable 980
Medical and Hospital Aid..... 981
Right of Employees to Choose Physicians 981
Employers' Liability for Cultists' Treatment 981

IX. MISCELLANEOUS LEGISLATION... 981
Laboratories 981
Blood Grouping Tests..... 981
Traffic Codes-Admissibility of Blood Test to Prove or Disprove Intoxication 982
Coroners and Medical Examiners.... 982
Animal Experimentation 982
Asexualization 982

V. RIGHTS AND DUTIES OF PRACTITIONERS

A. Rights and Privileges

INSURING PAYMENT OF MEDICAL BILLS.—*Liens for Physicians.*—Proposals failed of enactment in five states [356] to grant to physicians treating persons injured through the negligence of others liens on all rights of action, claims, judgments, compromises or settlements accruing to the injured persons by reason of their injuries. Two bills were rejected in New Jersey [357] to amend the law granting such a lien to a licensed physician. A bill which, if enacted, would have had the effect of giving an attending physician a broad lien on all the property, both real and personal, of the person or persons employing him was rejected in South Dakota.[358]

Priority of Physicians' Claims Against Assets of Insolvent Decedent.—A bill died in Delaware [359] which proposed that in the distribution of the assets of an insolvent decedent funeral expenses and reasonable bills for medicine and medical attendance during the last sickness and for nursing should be paid before any other claims against the estate.

Motor Vehicle Accident Compensation.—Bills failed of enactment in New York [360] and North Carolina [361] which, in effect, proposed to require motor vehicle owners in applying for an automobile license either to furnish a bond or an insurance policy or to pay a sum in addition to the registration fee required by law for the purpose of establishing a fund with which to pay the hospitalization and medical expenses of persons injured in motor vehicle accidents.

EQUAL RIGHTS FOR PRACTITIONERS OF ALL KINDS.—*Right to Practice in Hospitals.*—Bills were killed in eight states [362] to require all governmental hospitals and hospitals supported in whole or in part by public funds or exempt from taxation to permit all practitioners of the healing art to practice within their confines. Three of these bills [363] proposed also to impose this requirement on all hospitals whether or not they received any public moneys or were exempt from taxation. An Arizona bill [364] which would have required governmental hospitals to permit osteopaths to practice therein on the same terms and under the same conditions as doctors of medicine was killed. The Washington senate also rejected a similar proposal [365] to make it unlawful for any hospital organized as a charitable institution to refuse to any licensed physician and surgeon the use of facilities therein or the right to attend patients therein, for the direct or indirect reason that a particular physician and surgeon contracts to give medical service in consideration of payment of periodical premiums or dues or because of any physician's membership or nonmembership in any society or other lawful organization.

An unsuccessful Maine bill [366] proposed that all tax-exempt hospitals or hospitals receiving public funds must permit osteopaths licensed to practice obstetrics and surgery to practice therein and must furnish laboratory service to outpatients of such practitioners. Another Maine bill was also killed [367] which proposed that such hospitals must furnish laboratory services to such practitioners. A defeated Wisconsin bill [368] proposed that no hospital supported in whole or in part by public funds or exempt from taxation should discriminate against any physician whose license to practice had been revoked and subsequently restored.

356. Del. S. 253; Ill. S. 52 (this bill was enacted but as enacted the lien is given to hospitals only); N. Y. S. 337, A. 413; Ore. S. 353; S. C. S. 325.
357. N. J. S. 209, S. 210.
358. S. D. S. 25.
359. Del. S. 225.
360. N. Y. A. 1280.
361. N. C. S. 185.
362. Ark. S. 293; Calif. A. 2809; Conn. H. 1025; Mich. S. 428; Minn. H. 1484; N. Y. A. 1137; N. D. H. 170; Okla. H. 103.
363. Calif. A. 2809; Minn. H. 1484; Okla. H. 103.
364. Ariz. H. 115.
365. Wash. S. 159.
366. Me. H. 1706.
367. Me. H. 2238.
368. Wis. A. 343.

Right to Treat Workmen's Compensation Cases.—Proposals failed in California,[369] Oregon,[370] Washington [371] and Wisconsin [372] which, if enacted, would have permitted an injured workman to have his industrial injury treated by any person licensed to practice any of the healing arts at the expense of the state or at the expense of the employer, according to the particular compensation law. An Arizona bill,[373] which was killed, proposed in effect to confer on osteopaths the right to treat compensation cases. Proposals to confer similar rights on chiropractors were killed in Minnesota [374] and Wisconsin.[375]

Right to Treat Relief Cases or to Participate in Public Health Programs.—Laws were enacted in South Dakota [376] and Tennessee [377] which provide, in effect, that in expending public funds for medical care no distinction is to be drawn between the legally authorized branches of healing. The South Dakota law specifically gives each relief client the right to select a practitioner of his own choice, regardless of school of practice. However, the South Dakota law does provide that it is not to affect the state board of health in the administration of the program relating to services for crippled children.

Bills were killed in Missouri,[378] New York [379] and North Dakota [380] which proposed, in effect, that in the providing of medical assistance to indigent persons equal rights and privileges had to be given to licensed practitioners of every school of medicine or healing recognized by the laws of the state. Somewhat similar bills were killed in Arizona,[381] Massachusetts,[382] Missouri,[383] Oklahoma [384] and Rhode Island [385] which provided that in public health work and in the distributing of medical care to the indigent all doctors of medicine and osteopaths must be accorded equal rights and privileges. A bill was killed in Arkansas [386] which proposed that whenever any public funds were to be used to pay any part of the medical or hospital fees of any person employed on any project under the supervision and control of the state or federal government, all licensed physicians and surgeons in the state and all regularly operated hospitals had to be given an equal right to attend and/or hospitalize such persons.

VENEREAL PROPHYLACTICS.—A law was enacted in Washington [387] prohibiting the sale or other distribution, except by licensed physicians and by licentiates of the state board of pharmacy, of any device, medical preparation or compound which is or may be used, designed, intended, or which has or may have special utility, for the prevention and/or treatment of venereal diseases.

Similar bills were killed in four other states.[388]

PRIVILEGED COMMUNICATIONS.—The New Mexico privileged communication law was so amended this year [389] as to provide that a licensed physician or nurse cannot be examined without the consent of the patient as to any communication made by the patient with reference to any real or supposed venereal or loathsome disease or any knowledge concerning such disease. The new law further provides that no physician or nurse employed by a workmen's compensation claimant can be required to divulge any information obtained while treating the claimant except where the treatment is at the expense of the employer.

Unsuccessful attempts were made in three states [390] to provide that in any civil or criminal cause a licensed physician should not be allowed or compelled to disclose, except with the patient's consent, any information acquired in attending a patient which was necessary to enable the physician to prescribe or act for the patient. A similar bill was introduced in Alabama [391] and may be acted on when the legislature convenes again in June 1940.

Unsuccessful attempts were made in Ohio and Utah to amend the laws [392] prohibiting a physician from testifying concerning a communication made to him by his patient in that relation except by the express consent of the patient.

EXPERT WITNESSES.—Bills were killed in five states [393] proposing that whenever in any civil or criminal proceeding issues arise on which the court deems expert evidence desirable, it may appoint one or more experts, not exceeding three on any issue, to testify at the trial, and the fact that such experts have been appointed by the court was to have been made known to the jury.[394] The Pennsylvania House rejected a proposal [395] that a written report or a finding of facts prepared by an expert not a party to a cause nor an employee of a party nor financially interested in the result of the controversy, containing the conclusions resulting wholly or partly from written information by the cooperation of several persons acting for a common purpose, should, as far as the same might be relevant, be admissible when testified to by the person or one of the persons making such report or finding without calling as witnesses the persons furnishing the information and without producing the books or other writings on which the report or finding was based, if in the opinion of the court no substantial injustice would have been done to the opposing party.

LIMITATION ON MALPRACTICE ACTIONS.—A new Missouri law [396] provides that a licensed physician or the owner or operator of any private sanatorium or hospital shall not be liable in damages for the restraint of any insane person or persons of feeble or disordered mind by reason of having in good faith furnished care, treatment or attention to such persons.

An unsuccessful attempt was made in Indiana [397] to provide that all actions against physicians, dentists, hospitals or sanatoriums for malpractice, error, mistake or failure to cure should be commenced within two years after the cause of action accrues and that a cause of action would be deemed to have accrued on the date of the act or neglect complained of. Two bills failed of enactment in Arkansas [398] which proposed to require malpractice actions to be instituted within three years after the accrual of the cause of action. A cause of action, however, was not to be deemed to have accrued until the date it is discovered by the patient.

RIGHT TO COMPOUND AND DISPENSE PRESCRIPTIONS.—A bill died in Florida [399] proposing to authorize every licensed physician to compound and fill prescriptions written by him in his practice from a drugstore or apothecary owned and operated by him.

RIGHT TO EXTRACT TEETH.—A new Arkansas law [400] amends the dental practice act so as to provide

369. Calif. A. 2177.
370. Ore. S. 311.
371. Wash. S. 83.
372. Wis. A. 55, S. 185.
373. Ariz. H. 115.
374. Minn. H. 234.
375. Wis. A. 411.
376. S. D., Laws, 1939, c. 106.
377. Tenn., Public Acts, 1939, c. 102.
378. Mo. S. 342.
379. N. Y. A. 2107.
380. N. D. H. 113.
381. Ariz. H. 115.
382. Mass. H. 1277.
383. Mo. H. 152, S. 348.
384. Okla. S. 253.
385. R. I. H. 884.
386. Ark. S. 367.
387. Wash., Laws, 1939, c. 192.
388. Ariz. H. 148; Minn. S. 1262; Nev. A. 20; R. I. H. 913.
389. N. M., Laws, 1939, c. 235.
390. Del. S. 151; Ill. H. 506; W. Va. H. 156.
391. Ala. S. 124.
392. Ohio H. 204, H. 401; Utah S. 24.
393. Ark. S. 194; Ill. S. 197, H. 498; Mass. H. 1489; Pa. H. 367; Wash. S. 77.
394. All these bills, except the Massachusetts bill, were practically identical with the uniform expert testimony act prepared by the National Conference of Commissioners on Uniform State Laws.
395. Pa. H. 368.
396. Mo., Laws, 1939, c. ——, approved May 29, introduced as H. 264.
397. Ind. H. 418.
398. Ark. S. 284, H. 434.
399. Fla. H. 204.
400. Ark., Acts, 1939, Act. No. 150.

that nothing therein "shall prohibit or prevent any licensed physician from extracting teeth in an emergency when he shall deem it advisable and when a licensed dentist is not reasonably available."

Exemption from Occupational Tax.—A bill was killed in Arkansas [401] proposing to exempt from the payment of any privilege or occupational tax levied by any city or town which does not maintain a free medical clinic any physician whose services are largely given to the care of the indigent sick.

Right of Alleged Insane Person to Examination by Physician of Own Choice.—An unsuccessful attempt was made in Massachusetts [402] to provide that when a person under complaint or indictment for crime is committed to a hospital for the insane, the defendant shall have the right to be examined as to his mental condition by two physicians selected by him and that all reasonable expenses incurred by such examination should be paid as in the case of other court expenses.

B. Duties and Liabilities

Occupational Taxes.—The Revenue Act of 1939 of North Carolina [403] imposes an annual tax of $25 on practicing physicians, osteopaths, chiropractors, chiropodists, dentists, optometrists, opticians and any other person practicing "any professional art of healing for a fee or reward."

An unsuccessful attempt was made in Massachusetts [404] to impose an annual occupational tax of $5 on all persons practicing any profession. A bill was killed in Washington [405] to impose an additional annual license fee of $5 on physicians, $3 on drugless healers and $3 on midwives. The legislature of Florida killed a bill [406] to amend the law imposing an annual state license tax on practitioners of any profession so as to permit counties and incorporated cities and towns each to levy an additional license tax of 50 per cent of the state license tax.

Gross Income or Receipt Tax.—Unsuccessful attempts were made in five states [407] to levy a tax of varying percentages on the gross income of physicians, dentists and other licensed practitioners of the healing art.

Reports of Wounds, Diseases and Defects.—A new Alabama law [408] requires a physician diagnosing or treating a case of syphilis, gonorrhea, chancroid, venereal lymphogranuloma or granuloma venereum to report the facts immediately to the county health officer.

A similar bill failed in New Jersey.[409]

A new Massachusetts law [410] requires a physician in attendance at the birth of a child born with visible congenital deformities or birth injuries to report within thirty days after birth to the state department of public health and the city or town clerk of the place where the birth occurred.

A new Maryland law [411] requires a physician, pharmacist, dentist, hospital or nurse treating any person in Montgomery County for an injury which was caused by or shows evidence of having been caused by an automobile accident or by a lethal weapon to report the facts as soon as practicable to the county police.

A new New York law [412] requires a physician treating a patient with cancer or other malignant tumor to report the facts to the appropriate health officer.

A Montana law [413] requires physicians treating a person suffering from a disease contracted from employment to report the facts to the state board of health. Another Montana law [414] requires physicians and hospitals on the request of the Division of Industrial Hygiene to report details concerning instances of occupational diseases treated.

An unsuccessful attempt was made in Indiana [415] to require every physician within twenty-four hours after first learning of the existence of an occupational disease to report the facts to the state board of health.

Proposals were rejected in Pennsylvania to require physicians to report stated defects or diseases to the appropriate health authorities. One bill [416] proposed to require such a report with respect to a patient in whom is found sex abnormality, sex perversion or sex criminal tendencies. Another bill [417] proposed to require a physician to report to designated health authorities the name of any patient suffering from or affected with any disease which is communicable, infectious or contagious. Bills were killed in Pennsylvania [418] and Texas [419] to require every physician to notify in writing the appropriate local health officer of every case of any form of tuberculosis which comes under his professional observation.

Instilling Prophylaxis into Infants' Eyes.—A new South Carolina law [420] requires every physician, midwife, nurse or other person attending the delivery at birth of a child to instill, or have instilled, into the eyes of the baby within one hour after birth a 1 per cent solution of silver nitrate, or some equally effective prophylactic approved by the state department of public health, for the prevention of blindness from ophthalmia neonatorum.

Similar bills were considered and killed in California [421] and Florida,[422] the Florida bill being vetoed by the governor.

Designation of School of Practice.—A new West Virginia law makes it unlawful for any person to use the prefix "Doctor" or "Dr." in connection with his name in any letter, business card, advertisement, sign or public display of any nature without affixing thereto suitable words or letters designating the degree which he holds.[423]

A somewhat similar bill [424] was killed in New Mexico.

The Oregon law requiring a person using the title "Doctor" in connection with the practice of the healing art to add after his name a designation of his school of practice was so amended this year [425] as to require a person using the expression "clinic, institute, specialist or any other assumed or artificial name or title" in connection with the practice of the healing art to add after any such assumed or artificial name a designation of his school of practice. No person may use any designation or artificial or assumed name except a person licensed to practice in Oregon.

Serologic Tests of Pregnant Women.—A detailed discussion of the legislation considered this year to require physicians attending pregnant women to take

401. Ark. S. 242.
402. Mass. H. 1543, redrafted as H. 2152.
403. N. C. Public Laws, 1939, c. 158.
404. Mass. H. 1432.
405. Wash. H. 387.
406. Fla. H. 197.
407. Conn. S. 599; Ind. H. 34; Kan. H. 375; Mass. H. 1220; N. D. H. 388.
408. Ala., Laws, 1939, Gov. No. 229.
409. N. J. S. 171.
410. Mass., Laws, 1939, c. 326.
411. Md., Laws, 1939, c. 703.
412. Laws, N. Y., 1939, c. 892.
413. Mont., Laws, 1939, c. 322.
414. Mont., Laws, 1939, c. 127.
415. Ind. H. 114.
416. Pa. S. 503.
417. Pa. H. 161.
418. Pa. H. 431.
419. Tex. H. 246.
420. S. C., Laws, 1939, Gov. No. 236.
421. Calif. A. 2764.
422. Fla. S. 263.
423. W. Va., Laws, 1939, c. ——, Law Without Approval, March 17, introduced as S. 159 (a companion bill, H. 352, died in the house).
424. N. M. H. 259.
425. Ore., Public Acts, 1939, c. 353.

samples of their blood and to make or cause to be made serologic tests for syphilis will be found on page 878.

PROHIBITION OF OPERATION TO IMPEDE IN IDENTIFICATION.—Bills were considered and killed in New York [426] to prohibit the performance of an operation, the purpose or effect of which is to change or alter the skin or tissues of the fingers or thumbs so as to alter such person's finger patterns or fingerprints, and to prohibit also the performing of any operation of plastic surgery on a known criminal, the purpose or effect of which is to alter his personal appearance and make identification and apprehension difficult. These bills also proposed to require a physician to report immediately to appropriate police officials all requests for operations which seem to come within the provisions of the bill.

LIMITATION ON RIGHT TO DISPENSE.—A bill failed of enactment in Wisconsin [427] proposing so to amend the pharmacy practice act as to provide that its provisions should not interfere with the dispensing of drugs by physicians in an emergency, provided only such drugs shall be kept in stock by a physician as are necessary for emergency use.

ANNUAL RENEWAL OF LICENSES.—A proposal to require all persons licensed to practice medicine, osteopathy or chiropractic to renew their licenses annually with their respective boards of examiners and to condition renewal on the presentation of evidence that the applicant in the preceding year had attended recognized classes or clinics for the purpose of pursuing postgraduate study of subject or subjects pertinent to his system of healing for not less than ten class hours of fifty minutes each during the year was rejected in Michigan.[428]

LIMITATION ON FEE CHARGED.—A bill was killed in Oklahoma [429] to prohibit a licensed practitioner of the healing art, in making professional calls away from his office, to charge or collect more than his regular fee for each call plus fifty cents per mile for each mile actually and necessarily traveled in going from his office to the place where he attended the patient.

BLOOD TESTS ON PHYSICIANS.—An unsuccessful attempt was made in Indiana [430] to require every physician, dentist and nurse, at least once every two years, to cause to be submitted to an approved laboratory for a standard serologic test for syphilis a sample of his or her blood. If such test showed that the practitioner was infected with syphilis the license of that practitioner was automatically to be suspended and remain suspended so long as the disease was in a communicable stage.

WRITTEN DIAGNOSIS TO BE GIVEN PATIENT PRIOR TO OPERATION.—Bills were rejected in two states [431] which proposed to require a physician either before performing an operation or after removing an organ or limb to deliver a written explanation as to the nature of the operation performed or to be performed and the reason that such an operation was necessary. One of these bills [432] proposed to require the physician to deliver one copy of the diagnosis referred to to the patient and one copy to the state board of health, which was to preserve it as a permanent public record. One of the bills [433] proposed, in addition, to require a hospital wherein a limb or organ of a patient had been removed to preserve the limb or organ until such time, not exceeding six weeks after the operation, as it should be made known to the hospital whether or not the patient wished to view the limb or organ.

SECRET REMEDIES TO BE REVEALED TO STATE BOARD OF HEALTH.—A bill was withdrawn by its sponsor in Arkansas [434] which proposed to require any hospital, physician or person engaged in any of the healing arts who claims to possess a secret remedy which will relieve human suffering to deliver such secret to the state board of health for the benefit of the people of the state.

426. N. Y. A. 1265, S. 1391.
427. Wis. A. 719.
428. Mich. H. 859.
429. Okla. H. 354.
430. Ind. H. 494.
431. Mass. H. 756, H. 757; N. M. S. 190.
432. N. M. S. 190.
433. Mass. H. 757.
434. Ark. S. 401.

VI. LEGISLATION RELATING TO ALLIED PROFESSIONS AND SUNDRY VOCATIONS

DENTISTRY. — Laws amending or supplementing existing dental practice acts were adopted in Arizona,[435] Arkansas,[436] California,[437] Delaware,[438] Illinois,[439] Kansas,[440] Maine,[441] Maryland,[442] Michigan,[443] New Hampshire,[444] New Jersey,[445] New Mexico,[446] Oregon,[447] Rhode Island [448] and Wisconsin.[449] The new Arizona, Michigan and Rhode Island laws among other things, impose certain prohibitions against advertising on the part of licentiates. Generally, the laws follow the language used in an amendment to the Oregon dental practice act adopted in 1933, which the Supreme Court of the United States has held valid in *Semler* v. *Oregon State Board of Dental Examiners*, 55 S. Ct. 570. The provisions in question either authorize the revocation of a license or impose a penalty on a licentiate guilty of "advertising professional superiority or the performance of professional services in a superior manner; advertising prices for professional service; advertising by means of large display, glaring light signs, or containing as a part thereof the representation of a tooth, teeth, bridgework or any parts of the human head; employing or making use of advertising solicitors or free publicity agent; or advertising any free dental work or free examination; or advertising to guarantee any dental services, or to perform any dental operation painlessly."

The new Michigan law is of particular interest in that it also forbids a dentist from announcing or holding himself out to the public as limiting his practice to, or as being especially qualified in, or as giving special attention to, any branch of dentistry, without first having obtained a license therefor from the board of dental examiners. Before an applicant can obtain such a license he must prove to the board that he has had a minimum of one year of postgraduate work in any one of the several recognized branches of dentistry in an approved college or university and has complied with any additional requirements that the board might impose. The license that the board issues in such cases authorizes the dentist to hold himself out or to announce to the public that he is especially qualified to, or limits his practice to, or gives especial attention to such recognized branch of the dental profession as the license states.

The new Maryland law makes it a misdemeanor for any person, corporation, partnership or dental laboratory to solicit or advertise by mail, card, newspaper, pamphlet, radio or otherwise, to the general public to construct, produce or repair prosthetic dentures, bridges, plates, appliances or other appliances to be used or worn as substitutes for natural teeth.

Legislation specifically prohibiting unlicensed individuals from managing, operating, owning or conduct-

435. Ariz., Laws, 1939, c. 54.
436. Ark., Acts, 1939, Act No. 150.
437. Calif., Laws, 1939, c. 464, c. 466, c. 554.
438. Del., Laws, 1939, c. ——, approved May 1, introduced as H. 315.
439. Ill., Laws, 1939, p. 713, p. 714.
440. Kan., Laws, 1939, c. ——, approved April 3, introduced as S. 87.
441. Me., Public Laws, 1939, c. 50.
442. Md., Laws, 1939, c. 405.
443. Mich., Acts, 1939, Public Act No. 122.
444. N. H., Laws, 1939, c. ——, approved March 30, introduced as H. 33.
445. N. J., Laws, 1939, c. 168.
446. N. M., Laws, 1939, c. 201.
447. Ore., Laws, 1939, c. 320, c. 321.
448. R. I., Laws, 1939, c. 717.
449. Wis., Laws, 1939, c. 216.

ing a place where dental operations are performed was enacted in Illinois [450] and Wisconsin.[451]

A new Wyoming law [452] requires one member of the state board of health to be a licensed dentist.

Unsuccessful attempts were made in eleven states to amend existing dental practice acts.[453]

A bill, which died in Illinois,[454] proposed a procedure whereby a person might obtain a license to engage in dental laboratory services and to prohibit unlicensed persons from engaging in such services. The bill proposed, however, that its provisions should not apply to licensed dentists and to persons who render dental laboratory services exclusively for not more than one dentist. A far reaching proposal was killed in California [455] which proposed to create the dental corporation of California, to consist of all licensed dentists and licensed dental hygienists in the state and to be governed by a state dental board, whose members were to be selected by members of the corporation. Members of the existing board of state dental examiners were to be the first state dental board, but as their terms expired they were to be replaced by persons selected by the corporation. This state dental board was to exercise all the rights and assume all the duties now exercised by the board of dental examiners.

NURSING.—New nursing practice acts were adopted in California,[456] Connecticut [457] and Missouri.[458] The new California law [459] defines the practice of nursing as "the performing of professional services requiring technical skill and specific knowledge based on the principles of scientific medicine, such as are acquired by means of a prescribed course in an accredited school of nursing . . . and practiced in conjunction with curative or preventive medicine as prescribed by a licensed physician and the application of such nursing procedures as involve understanding cause and effect in order to safeguard life and health of a patient and others." The law then prohibits a person from practicing nursing as just defined unless licensed by the board of nurse examiners. The new Connecticut law contains somewhat similar provisions. It defines the practice of nursing as "(*a*) The performing, for compensation and under the direction of a licensed physician, of any professional service requiring special education, knowledge and skill in nursing care of those mentally or physically ill and in the prevention of illness; or (*b*) the performing, for compensation and under the direction of a licensed physician, of any of the simpler procedures required in nursing care of the sick, not involving the specialized education, knowledge and skill specified in subsection (*a*)." The law then prohibits any person from practicing nursing as just defined unless registered or certified in accordance with the terms of the act.

Existing nursing practice acts were amended in Alabama,[460] Illinois,[461] Maine,[462] Michigan,[463] New Hampshire,[464] North Dakota,[465] Oklahoma,[466] Tennessee [467] and Vermont.[468] Of particular interest is a provision in the new Illinois law which requires applicants for certificates as registered nurses to be citizens of the United States.

Unsuccessful attempts were made in eleven states to amend existing nursing practice acts.[469]

MEDICAL TECHNICIANS.—Unsuccessful attempts were made in Florida [470] to enact a so-called medical technicians practice act and to create a board of examiners to examine and license persons to practice as medical technicians. The bills proposed to define "a medical technician" as a "person who is engaged in the practice of standardized or experimental technical procedures, the results of which are interpreted by the physician in the diagnosis of disease." The bills proposed that the provisions of the act should not apply to an office assistant or nurse who, in addition to his or her routine duties, performed such laboratory procedures as ordinary blood counts, urinalyses and basal metabolic tests whose results are used only by the employer-physician in his private practice of medicine and who assumes responsibility for the work so performed.

PHARMACY.—A new pharmacy practice act was enacted this year in New York.[471] Existing pharmacy practice acts were amended or supplemented by laws enacted in nineteen other states.[472] The new laws as a rule are not of sufficient interest to warrant a detailed discussion here. Among other things, one of the new Maine laws [473] makes it unlawful for any person to distribute at retail any veronal or barbital or any other salts, derivatives or compounds of barbituric acid, or any registered, trade-marked or copyrighted preparation registered in the United States Patent Office containing the above substances, except on the written order or prescription of a licensed physician, dentist or veterinarian. The prior law permitted such drugs to be distributed at retail if dispensed by a pharmacist. The prior laws did not limit the distribution of any registered, trade-marked or copyrighted preparation registered in the United States Patent Office containing the drugs referred to unless it contained more than 40 grains (2.6 Gm.) to the avoirdupois fluid ounce (30 cc.). The new Massachusetts law [474] vests in the board of registration in pharmacy discretionary power in granting permits to stores to transact a retail drug business. Under the prior law the board had no discretion in the matter and was forced to grant a permit with respect to an application made in a proper manner. The new Montana law [475] authorizes the state board of pharmacy to license stores other than pharmacies wherein may be sold ordinary household or medicinal drugs prepared in sealed packages or bottled by manufacturers. The new Washington law [476] requires every proprietor or manager of a pharmacy or drug store to keep in his place of business a suitable book or file of

450. Ill., Laws, 1939, p. 714.
451. Wis., Laws, 1939, c. 216.
452. Wyo., Laws, 1939, c. 3.
453. Calif. A. 2810, S. 990, S. 1183; Conn. S. 20, S. 298, S. 544, H. 1488; Fla. H. 270; Ill. H. 886, H. 885, H. 712, H. 655, H. 584; Iowa H. 348; Mich. H. 47; Mo. H. 579; Neb. Bill 183; Tenn. H. 988, H. 1398, S. 1008; Wash. H. 529, S. 264; Wis. A. 366.
454. Ill. S. 337.
455. Calif. S. 990.
456. Calif., Laws, 1939, c. 651, c. 807.
457. Conn., Laws, 1939, c. 355.
458. Mo., Laws, 1939, c. ——, approved June 8, introduced as S. 248.
459. Calif., Laws, 1939, c. 807.
460. Ala., Laws, 1939, Gov. No. 486, 487.
461. Ill., Laws, 1939, p. 720.
462. Me., Public Laws, 1939, c. 87.
463. Mich., Laws, 1939, Act No. 30.
464. N. H., Laws, 1939, c. ——, approved April 5, introduced as H. 146.
465. N. D., Laws, 1939, c. 187.
466. Okla., Laws, 1939, c. ——, approved Feb. 24, introduced as H. 226.
467. Tenn., Laws, 1939, c. 28.
468. Vt., Laws, 1939, c. ——, approved March 23, introduced as S. 8.
469. Calif. A. 864, A. 863, S. 960, S. 961; Conn. H. 1034; Fla. H. 393, S. 271; Mass. H. 759, H. 858, H. 2326; N. Y. A. 1691, S. 1053, A. 2206, S. 1828, S. 1321; N. C. S. 441; Ohio H. 188; Pa. S. 594, H. 1105, H. 1104; R. I. H. 962; Tenn. S. 137; Texas H. 712, S. 468.
470. Fla., S. 1171, H. 1935.
471. N. Y., Laws, 1939, c. 869.
472. Ark., Acts, 1939, Act 120; Calif., Laws, 1939, c. 867, c. 1002; Del., Laws, 1939, c. ——, approved Feb. 23, introduced as H. 10, c. ——, approved May 13, introduced as H. 219; Fla., Laws, 1939, c. 19323; Ida., Laws, 1939, c. 62, c. 116; Ill., Laws, 1939, p. 719; Ind., Laws, 1939, c. 16; Me., Public Laws, 1939, c. 35, c. 52, c. 209; Md., Laws, 1939, c. 319; Mass., Laws, 1939, c. 138; Mo., Laws, 1939, c. ——, approved June 23, introduced as S. 196, c. ——, approved June 22, introduced as S. 197, S. 198, S. 199, S. 200, S. 201, c. ——, approved May 22, introduced as S. 202 and S. 204, c. ——, approved June 22, introduced as S. 203; Mont., Laws, 1939, c. 175; Neb., Laws, 1939, c. ——, approved June 1, introduced as Bill 104; N. H., Laws, 1939, c. ——, approved March 30, introduced as S. 19; N. J., Laws, 1939, c. 85; Tenn., Public Acts, 1939, c. 36; Wash., Laws, 1939, c. 28; W. Va., Laws, 1939, c. 45; Wis., Laws, 1939, c. 448.
473. Me., Pub. Laws, 1939, c. 209.
474. Mass., Laws, 1939, c. 138.
475. Mont., Laws, 1939, c. 175.
476. Wash., Laws, 1939, c. 28.

the original of every prescription compounded or dispensed therein, numbering, dating and filing them in the order in which they were compounded or dispensed, and preserving them for not less than five years. The new law also requires that on the container of a prescription there shall be fixed a label bearing the name and address of the pharmacy wherein compounded, the corresponding serial number of the prescription, the name of the prescriber, his directions, the name of the patient and the date and initials of the registered pharmacist who compounded the prescription.

Various bills proposing to amend existing pharmacy practice acts were killed in twenty-three states.[477]

CHIROPODY.—Bills to enact separate chiropody or podiatry practice acts and to provide for the examining and licensing of such practitioners by an independent board of examiners were considered in three states.[478] Only one state, New Mexico, enacted such a law.[479] The definition of chiropody in the New Mexico law seems extremely broad. Chiropody is defined as "The diagnosis and the medical, surgical, mechanical, manipulative and electrical treatment of ailments of the human foot excepting amputation of the foot or toes or the administration of an anesthetic other than local."

The Alabama medical practice act was so amended this year [480] as to authorize the state board of medical examiners to license persons to practice chiropody. Such practitioners, however, are authorized to diagnose only local ailments of the human foot and to treat such ailments only locally, extending treatment no deeper than the true skin and using only local anesthetics in connection with such treatment. Applicants for such a license must possess such qualifications and submit to such examinations as in the judgment of the board of medical examiners are necessary for the protection of the public health. Such examinations must embrace the anatomy and physiology of the foot; the diagnosis and treatment of diseases and ailments of the foot, asepsis, antisepsis, therapeutics and clinical chiropody.

Amendments to existing chiropody practice acts were adopted in Connecticut,[481] Delaware,[482] Florida,[483] Illinois,[484] Michigan,[485] Minnesota,[486] Montana [487] and Texas.[488] One of the new Illinois laws [489] requires all applicants for such licenses to be citizens of the United States. The laws adopted in Michigan, Montana and Texas, among other things, seem to extend the scope of a license to practice chiropody. The new Michigan law seems to permit such practitioners to treat ailments of the human foot by physiotherapy. The new Montana law states that chiropody is "the diagnosis, medical, surgical, mechanical, manipulative and electrical treatment of ailments of the human foot" but prohibits chiropodists from amputating the human foot or toes or from administering any anesthetic other than local. The new Texas law permits such licentiates to treat ailments of the human foot by any system or method, either medical, surgical, mechanical, manipulative or massage, physiotherapy, mechanotherapy, electrical appliance or other system or method but prohibits a chiropodist from amputating the human foot or toe or from administering any anesthetic other than local. The new Delaware law [490] purports to raise the educational qualifications of chiropody applicants by requiring them to present proof that they have obtained a doctor's degree in chiropody after graduating from an accredited college or university, which requires as a prerequisite to graduation a four year course of instruction in chiropody, consisting of at least eight months of instruction a year and a total of at least 3,980 hours of instruction for the four year course.

A new California law [491] requires chiropody applicants to have completed a one year resident course of work of college grade in a school approved by the board of medical examiners before commencing the resident course of study in chiropody.

An unsuccessful attempt was made to repeal the chiropody practice act of Tennessee.[492]

Unsuccessful attempts were made in seven states to amend existing laws regulating the practice of chiropody.[493]

OPTOMETRY.—New optometry practice acts were enacted this year in Florida [494] and Wyoming.[495] The new Florida law defines optometery as "the diagnosis of the human eye and its appendages, and the employment of any objective or subjective means or methods for the purpose of determining the refractive powers of the human eyes, or any visual, muscular, neurological or anatomic anomalies of the human eyes and their appendages, and the prescribing and employment of lenses, prisms, frames, mountings, orthoptic exercises, light frequencies and any other means or methods for the correction, remedy, or relief of any insufficiencies or abnormal conditions of the human eyes and their appendages." The law also requires courts and governmental agencies to accept the testimony and services of optometrists on the same basis, and on a parity "with any other person or persons authorized by law to render similar professional service." The new Wyoming law defines optometry as "the employment of any means other than the use of drugs for the measurement of the powers or range of human vision or the determination of the accommodative and refractive status of the human eye or the scope of its functions in general or the adaptation of lenses or frames for the aid thereof." The new law specifically prohibits an optometrist from using the title "oculist" or "ophthalmologist" or any other word or abbreviation indicating that he is engaged in the treatment of diseases of or injuries to the human eye, or possesses the right to use drugs or medicine in any form for the treatment or examination of the human eye.

Amendments to existing optometry practice acts were adopted in Arkansas,[496] California,[497] Connecticut,[498] Delaware,[499] Illinois,[500] Kansas,[501] Maine,[502]

477. Calif. S. 818, S. 819; Conn. H. 1511; Fla. H. 1576, H. 264, H. 265; Ga. H. 682; Ill. H. 752; Iowa S. 193, S. 195, S. 194, S. 398, S. 399; Mass. H. 69, H. 1655, H. 1656, H. 1787; Mich. S. 317, H. 272; Mo. S. 306, H. 389; Nev. A. 20; N. J. S. 15, A. 266; N. M. H. 83; N. Y. S. 1774, A. 2257; N. C. H. 311, H 566; Okla. S. 75, S. 170, H. 426; Ore. H. 9; Tenn. S. 386; Texas S. 166, H. 453; Utah H. 269; Vt. H. 367; Wash. H. 307; Wis. A. 443, A. 718, A. 877; Wyo. H. 30.
478. N. J. A. 199; N. M. H. 13; Pa. H. 1038.
479. N. M., Laws, 1939, c. 17.
480. Ala., Laws, 1939, Gov. No. 448.
481. Conn., Laws, 1939, c. 53.
482. Del., Laws, 1939, c. ——, approved May 1, introduced as H. 171; c. ——, approved May 1, introduced as H. 170.
483. Fla., Laws, 1939, c. 19173, c. 19304.
484. Ill., Laws, 1939, p. 709, p. 713.
485. Mich., Acts, 1939, Pub. Act No. 221.
486. Minn., Laws, 1939, c. 160.
487. Mont., Laws, 1939, c. 218.
488. Texas, Laws, 1939, c. ——, approved July 11, introduced as H. 195.
489. Ill., Laws, 1939, p. 709.
490. Del., Laws, 1939, c. ——, approved May 1, introduced as H. 171.
491. Calif., Laws, 1939, c. 1021.
492. Tenn. H. 183.
493. Calif. S. 1084, A. 531, A. 532; Fla. H. 398, H. 380; Mo. H. 533, H. 534, H. 535, H. 577, H. 578, H. 580; Nev. A. 25, S. 64; Tenn. H. 184; W. Va. H. 183; Wyo. H. 125.
494. Fla., Laws, 1939, c. 19031.
495. Wyo., Laws, 1939, c. 63.
496. Ark., Acts, 1939, Act. No. 109.
497. Calif., Laws, 1939, c. 560.
498. Conn., Laws, 1939, c. 114, c. 360.
499. Del., Laws, 1939, c. ——, approved April 12, introduced as S. 93.
500. Ill., Laws, 1939, p. 718.
501. Kan., Laws, 1939, c. ——, approved March 30, introduced as H. 222.
502. Me., Public Laws, 1939, c. 298.

Montana,[503] Nevada,[504] New Hampshire,[505] New Mexico,[506] New York,[507] Tennessee[508] and Texas.[509] As a general rule, the amendments are not of sufficient interest to warrant discussion here. However, the new Illinois law[510] and one of the laws adopted in New Hampshire[511] require applicants for licenses to be citizens of the United States. The new laws adopted in Montana and Tennessee, among other things, prohibit optometrists from advertising the prices for which they will render services or supply materials. The new New Mexico law broadens the prior definition of optometry by defining it as "the employment of an [sic] subjective or objective means or methods, other than the use of drugs or surgery, for the purpose of determining the refractive condition of the human eye or any muscular or visual anomalies thereof; or the employment, adapting or prescribing of lenses, prisms, or other optical appliances, or other means, modalities or methods, not including drugs, medicines or surgery for the correction or relief of disturbances in and anomalies of the human visual system and its supportive functions."

The new Arkansas law declares the practice of optometry to be a learned profession [sic] and states that the same rights and powers attach thereto as to the other learned professions. The law defines optometry as "the employment of any method or means other than the use of drugs, medicine or surgery, for the analysis of any optical defect, deficiency, or deformity, visual or muscular anomaly of the visual functions, or the use of scientific instruments to train the visual system."

Unsuccessful attempts were made to amend the optometry practice act in twenty-three states.[512]

OPTICIANS — OPHTHALMIC DISPENSING. — A new California law[513] provides a practice act for dispensing opticians. The law requires registration with the board of medical examiners of individuals and firms filling prescriptions of physicians and surgeons licensed by the board of medical examiners for ophthalmic lenses and kindred products, and, as incidental to the filling of such prescriptions, taking facial measurements and fitting and adjusting lenses or frames. The law is not to affect any licensed optometrist or physician and surgeon but the exemption is not to apply to any optometrist or physician exclusively engaged in the business of filling prescriptions for physicians and surgeons.

Bills were killed in California,[514] proposing a practice act for persons engaged in optical dispensing and limiting optical dispensing to persons licensed to do so by the board of optometrical examiners.

Optician practice acts were considered and killed in Massachusetts,[515] Pennsylvania[516] and New York[517] which proposed to establish independent boards of optician examiners.

503. Mont., Laws, 1939, c. 130.
504. Nev., Laws, 1939, c. 79.
505. N. H., Laws, 1939, c. ——, approved June 16, introduced as H. 437, c. ——, approved June 17, introduced as H. 59.
506. N. M., Laws, 1939, c. 166.
507. N. Y., Laws, 1939, c. 916.
508. Tenn., Public Acts, 1939, c. 90.
509. Texas, Laws, 1939, c. ——, approved June 30, introduced as H. 410.
510. Ill., Laws, 1939, p. 718.
511. N. H., Laws, 1939, c. ——, approved June 16, introduced as H. 437.
512. Ark. S. 480; Calif. A. 1720; Colo. S. 464; Del. S. 94; Ga. S. 166, H. 432; Ida. H. 151; Ill. S. 457; Iowa H. 594; Md. S. 257; Mass. H. 1405, H. 1406; Mo. S. 280; Neb. Bill. 433; N. H. H. 125; N. J. A. 128, A. 639; N. Y. A. 1988, S. 2118; N. C. H. 881, H. 1087; N. D. H. 340; Ohio S. 114, S. 134; Ore. S. 70; Pa. S. 685, H. 717, H. 966; R. I. H. 803; Texas S. 38; Wash. H. 482.
513. Calif., Laws, 1939, c. 955.
514. Calif. S. 1226, A. 1666.
515. Mass. H. 668.
516. Pa. H. 410, H. 973.
517. N. Y. S. 589.

VII. BILLS AFFECTING HOSPITALS

A. Hospitals Generally

CONTRACTS FOR HOSPITALIZATION; HOSPITALIZATION INSURANCE.—Legislation to authorize the formation of corporations to provide on a "nonprofit basis," "hospital care" to their members and subscribers have been discussed in this survey on page 876.

LIENS FOR HOSPITALS.—Laws were enacted in Illinois,[518] Kansas[519] and Rhode Island[520] granting liens to all hospitals treating persons injured through the negligence of others on all claims, rights of action, settlements, judgments or compromises accruing to the injured persons because of their injuries.

Similar bills were killed in six other states.[521]

The New York law granting hospital liens of this type was amended this year[522] so as to provide that the fee for filing a claim of lien in the counties comprising the city of New York shall be 50 cents and that the fee for filing a discharge of lien in those counties shall be $1.

Unsuccessful attempts were made to amend the New York hospital lien act in other particulars.[523] Attempts likewise failed in three other states[524] to amend existing hospital lien acts.

PAYMENT BY STATE FOR HOSPITAL CARE.—Unsuccessful attempts were made in four states[525] to provide a procedure whereby hospitals might be reimbursed by the state for care and treatment rendered indigents injured in motor vehicle accidents.

Proposals were killed in New York[526] and North Carolina[527] to require applicants for automobile licenses to pay stated additional fees to establish a fund which was to pay the hospitalization expenses of persons injured in motor vehicle accidents.

FACILITIES AVAILABLE TO CULTISTS.—Proposals to require all private hospitals, or certain types of private hospitals, to permit any licensed practitioner of the healing art to treat patients within their confines has been discussed in this survey on page 972.

LICENSING OF ALL PRIVATE HOSPITALS.—Bills to require the annual licensing of all private hospitals by specified state agencies were killed in five states.[529]

HOSPITAL EMPLOYEES.—Bills to limit the hours of employment in hospitals of nurses to not more than eight hours a day were killed in three states.[529]

REPORTING OF WOUNDS, INJURIES AND DEFECTS.—Legislation proposing to require hospitals to report the status of wounds, injuries and defects, has been considered in this survey on page 974.

PAYMENT OF SALARIES TO INTERNS.—An unsuccessful attempt was made in Pennsylvania[530] to require all hospitals receiving appropriations from the commonwealth to pay each intern an annual salary of not less than $1,000.

518. Ill., Laws, 1939, p. 700 (similar bills were S. 371 and H. 978, which failed of enactment).
519. Kan., Laws, 1939, c. ——, approved March 30, introduced as H. 509.
520. R. I., Laws, 1939, c. 709.
521. Ga. H. 526; Me. H. 1416; Mo. S. 22; S. C. S. 325; S. D. S. 25; Tenn. H. 758.
522. N. Y., Laws, 1939, c. 290.
523. N. Y. A. 755, A. 1400, S. 1349, A. 2028.
524. Del. S. 253; Ind. H. 224; Ore. S. 353.
525. Minn. S. 1289 and H. 1454; Neb. Bill 476; Ore. H. 415; Pa. H. 1409.
526. N. Y. A. 1280.
527. N. C. S. 185.
528. Ark. H. 101, H. 335, H. 366; Ill. H. 110; Mass. H. 852; Pa. H. 727, S. 545; Texas H. 176.
529. Conn. S. 290; Mont. H. 321; N. Y. A. 1585 (this bill applied to all hospital employees).
530. Pa. H. 688.

HOSPITAL RECORDS.—A bill was killed in New York [531] to make hospital records or copies thereof, when certified by an officer in charge of the hospital, admissible as evidence in courts of record, provided only that any declarations or statements contained in said record made by an injured party of a non-medical nature or which are explanatory or descriptive of the occurrence, happening or accident in question, were not to be admissible. A California bill, which was killed,[532] proposed to require hospitals to keep records on file for at least three years after the patient had been discharged and to permit the patient or his representative to inspect the records and make copies thereof.

MISCELLANEOUS.—A new South Carolina law [533] provides a penalty for any person who operates a radio or other musical instrument in such a manner that it disturbs any patient confined to a hospital or sanatorium. A law enacted in Massachusetts [534] prohibits employees and persons connected with hospitals from furnishing information about personal injury cases to attorneys or their representatives.

LIABILITY OF CHARITABLE HOSPITALS FOR NEGLIGENCE OF EMPLOYEES.—The Illinois senate rejected a proposal [535] that corporations not for pecuniary profit shall be liable for the negligence of their officers, agents and servants in the course of their authorized duties and employment.

THE PRACTICE OF MEDICINE BY HOSPITALS.—An unsuccessful Missouri bill [536] proposed, in effect, to permit hospitals to practice medicine through the agency of physicians, osteopaths and dentists in their employ.

SUPPLYING OF OXYGEN TENTS BY STATE.—Two bills were killed in Massachusetts [537] proposing to require the state to furnish oxygen tents to stated types of hospitals.

LIABILITY FOR INJURIES OR DISEASES OF EMPLOYEES.—An unsuccessful attempt was made to amend the Pennsylvania workmen's compensation act [538] so as to make compensable as an occupational disease a contagious disease of any kind contracted by a person employed in or about any hospital where persons having contagious diseases are admitted for treatment. Unsuccessful attempts were made in New York [539] to include within the workmen's compensation act employment in hospitals.

B. Particular Types of Private Hospitals

MATERNITY HOSPITALS.—A new law was adopted in Oregon [540] prohibiting the operation of a maternity hospital or other place for the reception, care and treatment of women during pregnancy or within ten days after delivery unless licensed by the state board of health.

Similar bills were killed in North Dakota [541] and Utah.[542]

The Illinois law regulating the operation of maternity hospitals was amended this year [543] in several particulars. Most important is a requirement that such a hospital to be licensed or to retain licensure must possess equipment necessary for its purpose and must be safe and sanitary. No such hospital is permitted to place a child for adoption or care unless it is licensed as a child welfare agency.

An unsuccessful attempt was made so to amend the Colorado law [544] relating to the supervision and licensing of child welfare agencies, boarding homes and maternity hospitals.

531. N. Y. A. 269.
532. Calif. A. 1727.
533. S. C., Laws, 1939, Gov. No. 543.
534. Mass., Laws, 1939, c. 197.
535. Ill. S. 332.
536. Mo. S. 68.
537. Mass. H. 2206, H. 1265.
538. Pa. H. 440.
539. N. Y. A. 1238, S. 914.
540. Ore., Laws, 1939, c. 494.
541. N. D. H. 154.
542. Utah S. 85.
543. Ill., Laws, 1939, p. 328.
544. Colo. S. 323.

C. Governmental Hospitals

FACILITIES AVAILABLE TO CULTISTS.—Legislative proposals to require governmental hospitals to permit any licensed practitioner of the healing art to treat patients within their confines have been discussed in this survey on page 972.

STATE HOSPITALS FOR THE TREATMENT OF TUBERCULOSIS.—A new North Carolina law [545] authorizes the establishment in eastern North Carolina of a sanatorium for the treatment of persons afflicted with tuberculosis.

Bills to authorize either the establishment of a state hospital for the treatment of tuberculosis or additional hospitals for such purposes were killed in four states.[546]

STATE HOSPITALS FOR THE INSANE.—Unsuccessful attempts were made in two states [547] to authorize the establishment and operation of additional state hospitals for the care, treatment and maintenance of insane persons. An unsuccessful attempt was made in Wisconsin [548] to require the establishment of a chiropractic ward in a stated state hospital for the insane.

STATE PSYCHIATRIC OR PSYCHOPATHIC HOSPITALS OR CLINICS.—Laws were enacted in California,[549] Delaware [550] and Vermont [551] authorizing the establishment and operation of state psychiatric or psychopathic hospitals or clinics. The new California law provides for the operation in existing state institutions of units for the custodial care and treatment of defective or psychopathic delinquents of both sexes. The new Delaware law directs the board of trustees of the Delaware State Hospital at Farnhurst to establish a psychiatric observation clinic for the observation, study, psychiatric diagnosis and treatment of persons suffering from mental and nervous diseases. The new Vermont law establishes within the Department of Public Welfare a psychiatric clinical division which is to provide adequate local and traveling clinics at such places and at such times as will economically and efficiently examine (1) children under the supervision and jurisdiction of the public welfare department; (2) dependent, neglected or delinquent children against whom court proceedings have been instituted, and (3) children against whom complaints or petitions have been made to the state probation officer. Judges are authorized to commit children on the facts indicated to such clinics for examination and receive the results of the examinations and recommendations before passing sentence.

STATE CANCER HOSPITALS.—Unsuccessful attempts were made in Arkansas [552] to establish an institute for the hospitalization and treatment of persons suffering from cancer. The bills proposed that persons able to pay only a part of the expenses of necessary treatment might be admitted under such regulations as may be established by the board of trustees of the proposed institute.

STATE ORTHOPEDIC HOSPITALS.—Unsuccessful attempts were made in two states [553] to establish hospitals for the prevention, treatment and cure of infantile paralysis. A proposal was rejected in California [554] to establish a number of crippled children hospital districts to provide special care and treatment

545. N. C., Laws, 1939, c. 325.
546. Idaho H. 374, H. 375, H. 424; Ill. H. 224; Nev. S. 8; N. Y. A. 1417.
547. Fla. S. 306, H. 352, S. 593, H. 963; Ia. H. 180.
548. Wis. S. 142.
549. Calif., Laws, 1939, c. 997.
550. Del., Laws, 1939, c. ——, approved April 24, introduced as H. 76.
551. Vt., Laws, 1939, c. ——, approved April 13, introduced as H. 283.
552. Ark. H. 438, H. 312.
553. Mont. H. 249; Wyo. H. 54.
554. Calif. A. 2338.

and physical rehabilitation for physically defective and handicapped children under 18.

STATE HOSPITALS FOR THE TREATMENT OF INEBRIATES.—A new California law [555] directs the Director of Institutions, with the approval of the state board of control, to provide suitable units to be used for the isolation and rehabilitation of chronic inebriates. The law provides a procedure whereby inebriates may be committed to the state inebriate colonies by appropriate courts.

A bill in Massachusetts [556] was referred to the next session of the legislature which proposed to provide at state expense for the care and treatment of inebriates for a period of not exceeding six months each per person so treated.

STATE HOSPITALS FOR THE CARE AND TREATMENT OF INCURABLE CHILDREN.—Unsuccessful attempts were made in Florida [557] to authorize the state board of health to establish a home for the care and treatment of incurable children.

STATE HOSPITALS FOR THE TREATMENT OF BUERGER'S DISEASE.—A new Washington law [558] authorizes the establishment at Soap Lake of an institution to be known as the McKay Memorial Research Hospital, for the treatment and care of persons afflicted with Buerger's disease, and for experimental and scientific study of such diseases and the medicinal and curative properties of the waters of Soap Lake.

COUNTY GENERAL HOSPITALS.—Laws were enacted in Alabama,[559] Florida,[560] Iowa,[561] Kansas [562] and South Carolina [563] authorizing the establishment of county hospitals in stated counties in the states in question. The new Alabama law authorizes the establishment and operation of a county hospital in Cullman County. One of the Florida laws [564] provides for the establishment of a county general hospital in counties of from 9,000 to 11,000 population, while the other Florida laws authorize the establishment of such hospitals in Jackson, Leon, Pasco and Putnam counties. The Iowa law authorizes such hospitals in any county having a population of 135,000 or more. The Kansas law applies to a county of from 100,000 to 140,000 population containing a city of from 90,000 to 115,000 population. The first South Carolina law cited authorizes the establishment in the county of Charleston of such a hospital which can serve not only charitable patients but also pay patients at such rates as are commensurate with the ability of the patient to pay. The other South Carolina law authorizes a county hospital in Colleton County.

A new Wyoming law [565] permits county hospitals to treat pay patients at such rates as the hospital boards deem equitable.

A bill to accomplish a similar purpose was killed in California.[566]

555. Calif., Laws, 1939, c. 994.
556. Mass. H. 1836.
557. Fla. H. 577, S. 272.
558. Wash., Laws, 1939, c. 46.
559. Ala., Laws, 1939, Gov. No. 226.
560. Fla., Laws, 1939, c. ——, Law Without Approval, June 12, introduced as H. 2014; c. ——, approved May 20, introduced as H. 780; c. ——, Law Without Approval June 12, introduced as S. 988; c. ——, approved May 19, introduced as H. 1140; c. ——, Law Without Approval June 12, introduced as S. 1106.
561. Iowa, Laws, 1939, c. 143.
562. Kan., Laws, 1939, c. ——, approved April 3, introduced as H. 454.
563. S. C., Laws, 1939, Gov. No. 162, Gov. No. 686.
564. Fla., Laws, 1939, c. ——, Law Without Approval June 12, introduced as H. 2014.
565. Wyo., Laws, 1939, c. 88.
566. Calif. A. 2499.

COUNTY TUBERCULOSIS HOSPITALS.—A new North Carolina law [567] authorizes counties to establish and operate hospitals for the treatment of tuberculosis.

An unsuccessful attempt was made in Texas [568] to authorize the board of county commissioners of any county having a population of more than 30,000 to establish and operate a hospital for the treatment of tuberculosis.

DISTRICT TUBERCULOSIS HOSPITAL.—A new Illinois law [569] sets forth the procedure whereby any two or more contiguous counties may be incorporated as a tuberculosis sanatorium district and may establish and maintain a tuberculosis sanatorium, and branches, dispensaries and other auxiliary institutions connected with it within the limits of the district.

MUNICIPAL HOSPITALS.—A new Minnesota law [570] authorizes any city of from 2,700 to 2,800 population to establish and operate a general hospital.

Two other proposals were killed, however, in Minnesota [571] to authorize the governing board of any village or city to cause a special election to be held for the establishment and maintenance of a municipal hospital. If the election was favorable, the bill authorized the establishment and operation of such a hospital.

A new Kansas law [572] permits a particular city with a population of from 3,750 to 4,300 and located in a county of from 16,000 to 21,000 population to establish a city hospital.

VIII. WORKMEN'S COMPENSATION LEGISLATION

A. New Act

A law was enacted in Arkansas [573] providing compensation for employees for disability or death resulting from accidental injuries arising out of and in the course of employment and such occupational disease or occupational infection as arises naturally out of such employment or as naturally or unavoidably result from such accidental injury. The employer must furnish to the disabled workmen "such medical, surgical or other attendance or treatment, nurse and hospital service, medicine, crutches, and apparatus as may be necessary during sixty days after the injury or for such time in excess thereof as in the judgment of the [Workmen's Compensation] Commission may be required." Apparently, the injured workman is to be entitled to select his own physician only if an employer fails or neglects to provide one or in the case of emergency. The law specifically provides that a person rendering medical, surgical or other attendance or treatment, nurse or hospital service or emergency treatment must submit his proposed charges to the commission for its approval.

The new law is subject to a statewide referendum in November 1940, and its operation is suspended subject to the outcome of that referendum.

B. Changes in Present Compensation Acts

INJURIES COMPENSABLE.—New occupational disease compensation acts were enacted in Idaho,[574] Maryland [575] and Pennsylvania.[576] The new Idaho law pro-

567. N. C., Laws, 1939, c. 293.
568. Texas H. 245.
569. Ill., Laws, 1939, p. 483.
570. Minn., Laws, 1939, c. 254.
571. Minn. S. 68, H. 49.
572. Kan., Laws, 1939, c. ——, approved April 3, introduced as H. 342.
573. Ark., Laws, 1939, Act 319 (S. 41, H. 222 and S. 426, somewhat similar bills, were also considered but failed of enactment).
574. Idaho, Laws, 1939, c. 161.
575. Md., Laws, 1939, c. 465.
576. Pa., Acts, 1939, Act. No. 284.

vides compensation for some eleven stated types of occupational disease while the new Pennsylvania and Maryland laws respectively provide compensation for some twelve and thirty-four stated types of occupational disease. The new Maryland law sets up a medical board to consist of three physicians to be appointed by the governor, whose duty it is to pass on all claims for compensation for occupational disease and to conduct such physical and x-ray examinations of claimants as it deems necessary and to certify its findings to the state industrial accident commission.

Provisions of the workmen's compensation acts of Minnesota,[577] Ohio [578] and Washington [579] providing compensation for stated occupational diseases were amended this year. The new Ohio law extends the list of occupational diseases which are compensable and in effect makes compensable all diseases arising out of employment. The new Minnesota law adds to the list of compensable occupational diseases "the following occupational diseases due to the hazards of fire fighting, myocarditis, coronary sclerosis, and pneumonia or its sequelae in firemen." The new Washington law provides compensation under stated circumstances for asbestosis, silicosis (including anthracosilicosis and silicotuberculosis) and any respiratory disease contracted through the inhalation of dust.

A bill was killed in Oregon [580] proposing to make compensable all occupational diseases arising out of and in the course of employment. Bills to extend the list of compensable occupational diseases or to make stated occupational diseases compensable were killed in Delaware,[581] Georgia,[582] Montana [583] and Pennsylvania.[584] Unsuccessful attempts were made in New York [585] to include within the workmen's compensation act employment in hospitals.

MEDICAL AND HOSPITAL AID.—Laws increasing the amount of medical, surgical and hospital aid to be rendered an injured employee at the employer's expense were enacted in Arizona,[586] New York,[587] North Dakota,[588] South Dakota [589] and Texas.[590] The new Arizona law provides for such medical and hospital services as are reasonably required to be rendered the injured employee. The prior law limited this care to the first ninety days after the industrial accident. The new New York law enables an employee disabled by an occupational disease resulting from the inhalation of harmful dust to receive at the expense of the employer medical treatment for a period of up to 270 days. The new North Dakota law requires the state fund to furnish an injured employee such medical, surgical and hospital services and supplies as the nature of the injury may require and such artificial limbs, glasses, braces or appliances as may be necessary to rehabilitate the employee. The new South Dakota law raises to $300 the maximum liability of an employer for medical and hospital services rendered an injured workman and extends the period after the industrial accident during which the employer must provide such services to twenty weeks. The new Texas law requires an employer's insurer to provide medical and hospital services to an injured workman where needed up to ninety-one days from the date of the injury and in hospital cases, and if the attending physician certifies to the necessity thereof hospital services must be provided for two weeks longer.

Bills to increase the amount of medical, surgical and hospital aid to be rendered an injured employee at the employer's expense were killed in four other states.[591]

RIGHT OF EMPLOYEES TO CHOOSE PHYSICIANS.—Bills were killed in six states [592] which proposed to permit an injured employee to select the physician whom he desires to treat him for his industrial injuries and to make the employer liable for such medical and surgical aid as that physician deems reasonable or necessary.

EMPLOYERS' LIABILITY FOR CULTISTS' TREATMENT.—Bills were considered and killed in five states [593] to amend respective workmen's compensation acts so as to permit osteopaths or cultists to render the required "medical" attention to injured employees.

IX. MISCELLANEOUS LEGISLATION

LABORATORIES.—Laws regulating the operation of stated types of laboratories were enacted in Maryland [594] and Massachusetts.[595] The new Maryland law authorizes the state board of health to establish such a minimum standard as it considers necessary for laboratories in the state, except in Baltimore, which make examinations in connection with the diagnosis and control of human diseases. The new Massachusetts law authorizes the department of public health to issue on request certificates of approval to bacteriologic laboratories and to specify in the certificates what bacteriologic or serologic procedures performed in such laboratories are approved by the department.

A new California law [596] repealed the prior law regulating the production and distribution of serums, vaccines, bacterial cultures and viruses and enacted a new act prohibiting the production of such substances except in laboratories licensed either by the state department of health, the U. S. Public Health Service or the Bureau of Animal Industry of the U. S. Department of Agriculture.

BLOOD GROUPING TESTS.—Laws were enacted in Maine,[597] New Jersey [598] and Ohio [599] providing that whenever it is relevant in a proceeding involving the parentage of a child, the trial court may direct the mother, the child and the defendant to submit to one or more blood grouping tests to determine whether or not the defendant can be excluded from the probability of being the father of the child. The results of such tests are to be admissible only in cases in which exclusion is established.

Similar bills were killed in two other states.[600]

The New York law permitting a court whenever it is relevant to the prosecution or defense of an action to direct any parties to the action and the child of any such party and the person involved to submit to one or

577. Minn., Laws, 1939, c. 306.
578. Ohio, Laws, 1939, c. ——, approved May 26, introduced as S. 297.
579. Wash., Laws, 1939, c. 135.
580. Ore. H. 403.
581. Del. H. 141.
582. Ga. H. 399.
583. Mont. H. 180.
584. Pa. H. 440.
585. N. Y. A. 1238, S. 914.
586. Ariz., Laws, 1939, c. 28.
587. N. Y., Laws, 1939, c. 676.
588. N. D., Laws, 1939, c. 251.
589. S. D., Laws, 1939, c. 297.
590. Texas, Laws, 1939, c. ——, approved May 1, introduced as S. 352.
591. Del. S. 177; Ind. H. 225; Mich. S. 419, H. 550; Tenn. S. 868, H. 1174, S. 1003, H. 1385, H. 504.
592. Calif. A. 1515; Conn. H. 180; Ga. H. 227; Mich. S. 419, H. 550; Texas H. 463, H. 489, H. 695; Wis. A. 55.
593. Calif. A. 2177; Minn. H. 234; Ore. S. 311; Wash. S. 83, H. 302; Wis. A. 55, A. 411.
594. Md., Laws, 1939, c. 256.
595. Mass., Laws, 1939, c. 344.
596. Calif., Laws, 1939, c. 910.
597. Me., Public Laws, 1939, c. 259.
598. N. J., Laws, 1939, c. 221.
599. Ohio, Laws, 1939, c. ——, approved June 2, introduced as H. 213.
600. Calif. A. 1246; Minn. H. 84, H. 85.

more blood grouping tests was so amended this year [601] as also to permit a court to order such a test "wherever it shall be relevant in any proceeding pending in a court of record."

Traffic Codes—Admissibility of Blood Test to Prove or Disprove Intoxication.—Laws were enacted in Indiana [602] and Maine [603] making admissible in the trial of any person accused of operating a motor vehicle while intoxicated evidence of the percentage by weight of alcohol in his blood at the time of the alleged commission of the offense. The Indiana law provides that evidence that there was at the time in question 0.05 per cent, or less, by weight of alcohol in the blood is prima facie evidence that the defendant was not under the influence of intoxicating liquor sufficiently to lessen his driving ability. Evidence that there was, at that time, from 0.05 per cent to 0.15 per cent is relevant evidence but is not to be given prima facie effect as to intoxication. Evidence, however, that there was at that time, 0.15 per cent, or more, is prima facie evidence that the defendant was under the influence of intoxicating liquor sufficiently to lessen his driving ability. The Maine law is quite similar in this regard except that it states that evidence of 0.07 per cent, or less, by weight of alcohol is prima facie evidence that the defendant was not under the influence of intoxicating liquor and that evidence of from 0.07 per cent to 0.15 per cent is relevant evidence but is not prima facie evidence as to intoxication.

Bills similar to the Indiana law were rejected in Florida [604] and Illinois.[605]

Coroners and Medical Examiners.—A new Maryland law [606] repeals the prior law relating to coroners and creates a new executive and administrative department to be known as the Department of Post Mortem Examiners, the head of which is to be a commission consisting of the professors of pathology of the University of Maryland and of Johns Hopkins University, the director of health of the state, the commissioner of health of Baltimore city and the attorney general. This commission is authorized to appoint three medical examiners, who must be licensed doctors of medicine and have had at least two years of postgraduate teaching in pathology. The commission is also authorized to appoint a deputy medical examiner, who also must be a licensed physician, for each county of the state. Whenever any person dies as a result of violence, or by suicide, by casualty, suddenly when in apparent health, when unattended by a physician, or in any suspicious or unusual manner, it is to be the duty of the police or sheriff immediately to notify the chief medical examiner or a deputy medical examiner, who is then to go to the dead body, take charge of it and investigate the essential facts concerning the circumstances of death. If an autopsy is deemed necessary, it must be performed by the chief medical examiner, by the assistant medical examiner or by such competent pathologists as may be authorized by the chief medical examiner.

Unsuccessful attempts were made in Delaware [607] and Michigan [608] to abolish the office of coroner and to create a medical examiner system in the state.

601. N. Y., Laws, 1939, c. 647.
602. Ind., Laws, 1939, c. 48.
603. Me., Public Laws, 1939, c. 273.
604. Fla. H. 597.
605. Ill. H. 922.
606. Md., Laws, 1939, c. 369.
607. Del. S. 127.
608. Mich. S. 140.

The medical examiner laws of Maine,[609] Massachusetts [610] and Rhode Island [611] were amended this year. The Rhode Island amendment provides, among other things, that if the medical examiner believes that a death was caused by the act or neglect of some person other than the deceased he must notify the attorney general and the police of the jurisdiction in which the body was found and must file a copy of the record of his autopsy, or view, with the attorney general. The medical examiner must also in all cases certify to the officer having custody of the records of deaths in the town in which the deceased came to his death the name and residence of the deceased, if known, or, if not known, a description of the deceased together with the cause and manner by and in which he came to his death. The Massachusetts amendment permits a medical examiner to perform an autopsy on any dead body in his county on the written order of the district attorney. The prior law permitted an autopsy only on the body of a person supposed to have died by violence. The Maine amendments increase the number of medical examiners in stated counties and seem to require a medical examiner to obtain the authorization of the county attorney or the attorney general, before performing an autopsy.

Unsuccessful attempts were made to amend the law relating to coroners in four states.[612] One of these bills [613] proposed to create the office of medical referee for each county in the state. The medical referee was to be a licensed physician whose principal duty it was to determine as to whether it was necessary for the county coroner to hold an inquest on the remains of any deceased person. Another one of the bills [614] proposed to authorize the judges of the superior court to appoint for each county a coroner and a deputy coroner, who must be attorneys at law.

Animal Experimentation.—An unsuccessful attempt was made in New Jersey to amend the law relating to vivisection.[615] The bill proposed that the law making it a misdemeanor to inflict unnecessary cruelty on a living animal should not be construed to prohibit or interfere with properly conducted scientific experiments performed under the authority of the state department of health. The present law apparently limits the institutions or societies which the department may authorize to conduct such experiments by stating that the department may authorize such experiments to be conducted by agricultural stations and schools maintained by the state or federal government or by medical societies, universities, colleges and philanthropic institutions incorporated or authorized to do business in the state and having among their corporate purposes investigation into the causes, nature, prevention and cure of diseases.

Asexualization.—The legislatures of four states having no compulsory sterilization statutes considered and killed bills seeking to require the sexual sterilization of insane, idiotic or imbecilic inmates of state institutions.[616] One of these bills,[617] in addition, provided for the asexualization of persons who had been convicted a second time of a sex crime.

The legislatures of five states having compulsory sterilization laws considered and killed bills to amend or supplement existing sterilization statutes.[618]

609. Me., Laws, 1939, c. 241.
610. Mass., Laws, 1939, c. 475.
611. R. I., Laws, 1939, c. 715.
612. Conn. S. 921; Mont. H. 177; Wash. S. 31; Del. H. 120.
613. Mont. H. 177.
614. Conn. S. 921.
615. N. J. S. 318.
616. N. M. H. 109; Ohio H. 863, H. 627; Pa. H. 204, S. 318; Tenn. H. 202.
617. Pa. S. 318.
618. Calif. A. 2112; Nev. A. 178; Utah S. 124; W. Va. H. 268; Wis. A. 436.

OFFICIAL NOTES

ANNUAL CONGRESS ON INDUSTRIAL HEALTH

Second Annual Meeting, held in Chicago, Jan. 15 and 16, 1940

(Concluded from page 898)

DR. CLARENCE D. SELBY, Detroit, in the Chair

JANUARY 16—MORNING

PHYSICAL EXAMINATIONS

Objectives of the Health Examination and Their Industrial Application

DR. MCIVER WOODY, New York: In 1861, Horace Dobell, of London, came forward with the proposition "that there should be instituted, as a custom, a system of periodical examination, to which all persons should submit themselves, and to which they should submit their children." Little came of Dobell's suggestion, and the whole idea was forgotten for half a century. It was not until the army applied physical examinations on a large scale during the World War that data were available on the physical condition of those gainfully employed. After the World War, periodic examinations were introduced from time to time by certain large industrial organizations. Not too much was expected of them at first, but it was soon found that the examination was of immediate benefit, thanks to the effectiveness of modern treatment.

What is the best routine to follow when it comes to applying the periodic examination in industry? If the employee has been with the company for some years, there will be information concerning him in the files of the medical department. If records of the man's visits to the office are kept in ledger fashion, with a separate sheet for each employee, so that everything of a medical nature pertaining to that one individual can be found in one place, it will be no trouble for the nurse to place the man's folder on the doctor's desk so that he can glance through it rapidly before stepping into the examining room. To provide a favorable atmosphere for an examination that goes beyond the routine search for organic disease, it is advantageous to develop an informal approach, which must prevail from the moment the patient presents himself at the doctor's office. The nurse should let the patient feel that he is expected and very welcome, as she ushers him into the examination room, where he should be given a few minutes of quiet to prepare himself for the interview. I make it a practice to begin the examination by taking the blood pressure, partly because this is something that every layman is interested in and partly because it gives me a good opportunity to put the patient at his ease and inspire his confidence. Even the taking of the pulse I try to do in a way that indicates my personal interest. The examiner may vary the routine in some instances, provided he always carries two things in mind, to omit no essential part of the examination and to give the patient the feeling that this examination is intended solely for his benefit.

While the patient is dressing, the examiner may find it helpful to linger for a few moments while he reviews his observations, but as a rule he should not leave the examining room until he has given the patient a clear idea of the results of the examination and rather definite advice as to what he should or should not do about any defects which may have been brought to light by the check-up. This informal approach to the patient and his problem is more convincing than an impersonal attitude and we believe the patient is more apt to accept advice given him then. The examiner should seek to inspire confidence by the care and thoroughness of the whole procedure, and he should encourage the patient to feel that the physician's entire attention is concentrated on him, without any thought as to other pressing duties.

A man may not welcome the news that an incipient hernia has been discovered, but he is entitled to the information then and there, provided it is told him in a helpful manner. If he is alarmed over the possibility of operation, it may be well worth while to go into details of what may happen without operation and explain to him the advantages of having the inguinal canal restored to its original size before such a procedure becomes an emergency necessity. This holds true for diseased tonsils, diseased teeth and many other lesser conditions which can be treated successfully by modern dentistry and surgery. The problem is much more complicated when it comes to a question of heart or kidney disease. But even here it is nearly always possible to give the patient a fairly good idea of the health problem with which he is confronted. Indeed, it is surprising to see just how much information can be given a patient with benefit to him, if the subject is approached in a sympathetic spirit. These two instances serve to show that once the man realizes that a periodic examination is of a real benefit to him he will welcome the opportunity to come back year after year, especially if he knows that each time he is examined the observations will be compared with those at previous examinations; that even a slight variation in weight will elicit a certain amount of interest. In this way his interest can be aroused in the general principles of diet, exercise and recreation.

I have been considering the periodic examination mainly from the standpoint of the employee. To the company doctor, periodic examinations can be helpful in several ways. By devoting a few hours of each day to this part of the work, he can follow his cases through the years with a persistence that is beyond the reach of the clinicians in the best teaching hospitals. If the plant physician can give each employee his undivided attention for even fifteen minutes every year, he should be able to build up a personal friendship with them all. This gives the employees a real incentive to report industrial accidents promptly, and even the most trivial accident can have serious consequences in the way of infection, all of which could have been prevented by treatment given immediately after the accident occurred. The same considerations apply in industrial disease. Perhaps the greatest benefits are reaped from this confidence among employees when some unforeseen accident occurs; for it is then that the company doctor, who is thoroughly acquainted with the plant and the men in it, proves his worth. Of course, the employer's interest will be served by anything which benefits the individual employees. The days they are away from the job affect his annual statement just as truly as they do the savings accounts of the employees.

Finally, the plant physician will do well to consider the periodic physical examination as a problem in human engineering. As the engineer who designs a bridge takes care to do his work thoroughly but not in ponderous fashion, so the plant physician must take care not to make his examinations too searching, too prolonged and too theoretical. It might be helpful to mention the engineering rule that "good enough is best." Even though the employer might be willing to have the plant physician set aside more time for each periodic examination, it would not necessarily follow that an examination which took twice as long would be twice as valuable. The attitude of the employees to the examinations is important, for it would defeat their purpose if the employees came to the conclusion that they could not spare the time to be looked over because they had work to do. On the other hand, if the examinations are too superficial they fail to inspire confidence, and again the employees will begin to question whether the examination is worth while. Both extremes must be avoided. If the industrial physician is to be of lasting value in industry, he must think of himself as a medical engineer building the periodic health examination into a strong bridge to span the gap between medical knowledge and its application in industry.

The Private Practitioner and Industrial Physical Examinations

DR. RAYMOND HUSSEY, Baltimore: The physician making an industrial examination is on the lookout for the possible existence of presymptomatic or subclinical conditions and inactive disease, as well as active disease. The decision must be made regarding the fitness of the individual for employment,

and in many instances for a particular employment. So there are fundamental differences in the usual clinical responsibilities of the physician and those he must assume in connection with industrial physical examinations. During a symposium on occupational diseases in 1938 conducted by the Department of Industrial Medicine of the Northwestern University Medical School the subject of industrial physical examinations was presented by Selby; the subject of the relation of the private practitioner to industrial health and safety was presented by Seeger. Among the shortcomings of private practitioners engaged in industrial medical work, attention was called to their lack of knowledge about occupational disease hazards in the plants they serve. As a result of this they have failed in many instances to suggest to the management the desirability of surveying the industrial environment, and they are unable to make recommendations regarding the safety of placing individuals in particular jobs. In spite of this state of affairs, it is brought out that private practitioners furnish services to about 85 per cent of the industrial establishments in the United States and that the work of this group has been essentially case work and basically remedial in nature.

I agree with the criticisms made and I wish to make the following recommendations to improve conditions which provoke them:

1. That opportunities be offered medical students to work during vacation periods in medical departments of industries, just as such vocational opportunities are offered by industry to students of engineering and technical schools.

2. That formal and practical work in industrial hygiene be considered a prerequisite for physicians who expect to include industrial medicine in their practice.

3. That physicians already in industrial medicine cooperate more actively with their state and local health departments in such efforts as are made by those agencies to develop activities in connection with the control and prevention of occupational diseases. In particular that they find a way to comply more fully with any law requiring the reporting of occupational diseases.

4. That state, city and county medical societies should recognize the responsibility of medicine to industry as outlined in the several bulletins published by the Council on Industrial Health of the American Medical Association.

5. That medical societies initiate health examination programs in industry or cooperate with industry, labor and public health agencies in their development.

6. That these societies make an especial effort to bring to the attention of physicians the facts known concerning the silica hazard and the incidence of silicosis, the methods for its control and the pitfalls in its diagnosis.

7. That these representatives of organized medicine initiate movements to improve standards of medical practice in industry. Particularly, that a real effort be made to control medical and legal racketeering in connection with injuries and disease alleged to be a consequence of an occupation.

8. That, in the presentation of diseases which may result from occupational hazards, clinical teachers in our medical schools give more emphasis to the preventive aspects and to the community responsibilities of physicians in these special problems of medical care.

9. That medical schools as far as possible include in their curriculums more adequate instruction in industrial medicine or organize to better advantage what is now included.

Industrial medicine as a special field of interest is much like public health and requires curricular arrangement that more closely allies it with the teaching of preventive medicine in general. Medical school administrators as well as the students themselves have become aware of health hazards in scholastic and hospital work. The entrance requirements of many medical schools give equal emphasis to health and scholastic preparedness. In this manner the preadmission health examination and subsequent reexamination are becoming a matter of established fact and of recognized necessity. This together with improvements in methods of teaching anatomy and physiology and the development of clinics for the first and second year medical students where health is given emphasis will have a decisive influence in developing a point of view and an attitude for the student to understand the requirements of industrial medicine.

I believe that private practitioners will rise to the occasion when the demand is made for their services to participate in a program of health examinations for industry. At times, when there has been a general mobilization of our armed forces, private practitioners have adapted themselves quickly and efficiently to the requirements of military medicine, and I see no reason to think that they will do differently in the case of industrial medicine.

The problem of reemployment following temporary disabling illness deserves careful consideration. It is interesting to speculate on how the results of a wide scale physical examination program among industrial employees will influence the unemployment problem. Interesting also is the thought of how the results may affect rehabilitation programs and facilities.

A word about the examination: Fluoroscopic examinations and x-ray films of the chest should be required. Each examination should be divided among several medical men, each one of whom will be responsible for a particular part of the examination. Also I would stress the fact that physical-mental relationships must be kept in the foreground, since fitness for work and living depend equally on mental and physical health.

The Wisconsin Program of Preemployment and Medical Examination Procedure

MR. HARRY A. NELSON, Madison, Wis.: The Wisconsin statute required that employers should furnish employment and places of employment which should be safe for employees, should furnish and use safety devices and safeguards, should adopt and use methods and processes reasonably adequate to render employment and places of employment safe, and should do "every other thing reasonably necessary to protect the life, health, safety and welfare of such employees and frequenters." Further, employees should not remove, displace, damage, destroy or carry off any safety device or safeguard furnished nor interfere with their use, nor should they interfere with the use of any method or process adopted for the protection of employees "nor fail or neglect to do every other thing reasonably necessary to protect the life, health, safety or welfare of such employees or frequenters."

Different interpretations were given to safety statutes by the courts. Those courts which gave liberal interpretations from the standpoint of workers held not only that the physical equipment of the plant was required to be maintained in a safe condition but also that the workers themselves should be so chosen and supervised as to comply with the safe place and safe method statutes.

When analysis is made of statistical data covering accidents, it is observed that many of them occur because of the failure of the human factor. When we ask as to the manner in which this human element of unsafety is to be eradicated, we conclude that the least that can be done is to examine the worker at the time he enters employment and to reexamine him at reasonable intervals. Labor organizations have from time to time raised their voices against physical examinations of their members. Their protest has not been entirely without foundation. Happily, the vast majority of employers, and increasingly so, have exhibited sympathy and beneficence, if not always intelligence, toward their employees, sometimes even to the point of doing them harm by putting disabled persons in positions where they should not be. A middle course is indicated which will avoid prejudice to employees and reasonably safeguard the employers' interests.

Before the adoption of the physical examination program there had been written into the Wisconsin law provisions intended to discourage oppressive plans of physical examination and rejection of employees or applicants for employment. It was provided that the advantage of experience rating and consequent lower rate of premium for compensation insurance is to be forfeited by the employer who applies an oppressive plan

of examination. Self insurers are deterred from operating such plans by a provision granting the industrial commission power to revoke the exemption from insurance of the employer who institutes them. Insurance carriers under similar provisions may have their licenses revoked if they "encourage, persuade or attempt to influence any employer arbitrarily or unreasonably to refuse employment to or to discharge employees." A further provision is for benefits to one discharged from work because of nondisabling silicosis, unless it has been found by the commission that it is inadvisable for the employee to continue in employment.

To answer the objections of labor organizations and of employers, reasonable standards and safeguards must be formulated under which examinations are to be conducted. Their scope and their use must be clearly defined. An agency must be stipulated for purposes of arbitration in event claim is made of misuse of the examination privilege. For years Wisconsin has considered this subject. Two years ago the commission called a conference including representatives of labor organizations, employers, physicians and insurance companies to consider the possibility of setting up a program of physical examination of employees in this state. Committees were appointed to consider the various phases involved. One of these committees was a medical committee, the representatives of which were chosen by labor, by industry and by the industrial commission. A dozen meetings were held at which prolonged consideration and study was given to the subject. As a result of these deliberations the main committee presented a report, after which the industrial commission adopted the Wisconsin physical examination programs. The plan is in no way compulsory. The fact that it has been generally approved by representatives of interested parties leads the commission to believe that it will be widely adopted.

Under the plan all physical examinations are to be made by physicians selected by the employer. If there is a grievance on the part of the examined employee, the industrial commission on proper complaint will cause investigation to be made, and if the grievance is found to be justified the employer is to cause further examination of such employee to be made by another physician. The report urges that any practice inconsistent with the plan be presented to and acted on by the industrial commission. For such purpose the commission may appoint an advisory committee to be composed of representatives of labor, of industry and of the medical profession. Examinations are to be paid for in full by the employer, including lost time or transportation expense occasioned by examinations to employees in service. Preemployment examinations should be made prior to employment if possible. It is recognized, however, that there may be uncertainty as to qualifications other than physical fitness, so a test period is provided to enable the employer to learn of the employee's qualifications and to delay preemployment examination in such cases for a period not in excess of thirty days.

The medical subcommittee concluded that a program of this type should cover all types of industries. Protection of health and improvement in the physical well-being of the workers was first in their minds. Improvement in the economic status of workers as the result of protection of health is reflected in the reduction of time and wage loss resulting from ill health, and any program that tends to improve and protect the health of industrial workers tends to reduce the incidence of occupational accidents and diseases. With these principles in mind the committee adopted a report covering scope of examinations, reexaminations and specified procedures for different types of employment. In addition to physical examination, laboratory procedures are to include a chest roentgenogram (flat plate), blood serologic study for the diagnosis of syphilis, urinalysis for sugar and albumin determinations only, and blood examination.

One of the occupational diseases which today calls for large payment of benefits in Wisconsin is that of dermatitis caused by contact of individuals with substances used in their work. The program is not to be static. It is elastic and calls for continued study of specialized processes and of education of physicians to the awareness of the changing hazards brought on by progress in industrial operations. To insure success there must be the closest cooperation on the part of medical men and their organizations with labor and industry and unceasing vigilance by all in the discovery of newer and better practices as available. The subcommittee recommended that the original examination form be retained by the examining physician for his own record and that no other similar form be issued to either employee or employer. However, the employer and the employee should be informed of any defects which are found. So the report which is given to the employer and employee contains a notation as to physical defects (other than lungs), visual defects and, when pertinent, a further notation as to lung examination, with suggestions and recommendations.

Always it is to be stressed that the employee is to be considered a personal patient and treated as such by the examining physician. The relationship between these parties is that which should always exist between physician and patient. The employee's family physician is entitled to the full report of the examination so that he may intelligently treat his patient. When defects of a private nature are discovered, treatment is to be insisted on, and state and local laws covering treatment are invoked if the employee refuses to accept proper treatment.

The committee concluded that because of statutory provisions it was beyond its jurisdiction to prevent the admission of any examining physician's report as evidence in a compensation case. The use of the report in compensation cases will result in an honest factual determination, and the question of a preexisting condition or of aggravation will be given careful consideration by the commission. Use of the report will in no way prejudice the applicant, provided his claim is legitimate, and will in many cases assist him in establishing his claim by dispelling doubt as to a previous condition.

The program adopted is open to modification as often as required. It is an innovation of a pioneering nature. With the modifications which experience may suggest, we believe it will result in increased prevention of accidents and disease, in a happier placement of employees in work, and in the greater social and economic good of employer, employee and the state.

Scope and Methods of Industrial Physical Examinations of the Wisconsin Plan

DR. PAUL A. BREHM, Madison, Wis.: To promote an industrial health program, a medical subcommittee was appointed to consider a schedule of preemployment physical examinations and subsequent periodic reexaminations for workers in Wisconsin industries. I shall consider only the deliberations of the medical committee on the five points covered in the recommendations.

1. *Scope of Examinations to Be Made, Including Preemployment and Subsequent Examinations and Periodic Reexaminations.*—Much of the discussion during the committee meetings involved extending the scope of the examinations to include all industries, and also the inclusion of a chest roentgenogram as a routine diagnostic measure. It was felt that this is essential in making a diagnosis of tuberculosis, and from the standpoint of reducing the incidence of this disease the procedure was recommended. A routine x-ray study of the chest was considered important for the control of tuberculosis in any occupational environment. A flat plate was considered sufficient for routine examinations, whereas stereoroentgenograms may be necessary only in questionable cases of active tuberculosis or for the purpose of consultation. The importance of routine serologic examination of the blood for the diagnosis of syphilis is advocated for the protection of the infected individuals and prevention of spread of the disease. Syphilis in an infectious stage indicates adequate treatment before the infected person can engage in any occupation. Syphilis in a noninfectious stage should not exclude the patient from employment but should call for medical control. In industries presenting excessive hazards or hazards the nature of which requires frequent special laboratory investigation, it will be necessary to reexamine the individual, the interval of time depending largely

on the judgment of the examining physician; where only specialized procedures are frequently employed, the general physical examination need not be made except at the two year intervals. Specialized procedures for different types of employment to determine ill effects of exposures on workmen will necessitate supplementary information to be used by the examining physicians. It is advisable that a manual be prepared containing special diagnostic measures and physical examination guides for the various specific industrial hazards. The medical committee was of the opinion that of the greater importance in a new venture of this kind was to advocate a general program of physical examinations in all types of industries, thus laying the foundation on which to build soundly in the future.

2. *Form of Reports to Be Made by Physicians.*—Sample form A, advocated for reemployment and periodic reexaminations, includes personal history, occupational history, past medical history, spaces for recording the results of a complete physical examination and the required laboratory measures, space for special examination procedures, name of the physician making the x-ray study, name of the family physician, name of the examining physician and corresponding sections for four examinations. Sample form B is included for reporting the results of the examination in duplicate to both employer and employee.

3. *Whether or Not the Report Should Be Supplied in Its Original Form to Employer and Employee.*—The clinical judgment of the examining physician will determine the extent of information furnished to employer and employee. To report minor or unimportant data may create misunderstanding or fear. Only those significant defects which directly affect the employability of the applicant or which, if corrected, would benefit his physical well-being, are of major importance in an examination report.

4. *Reports in Compensation Cases Covering Injuries Claimed to Have Arisen After the Time of Examination.*—Because of statutory provisions it is beyond the jurisdiction of the medical committee to prevent the admission as evidence in a compensation case of any examining physician's report. Attention again is called to the fact that the examining physician's report of the physical observations is made in duplicate, the original to the employer and a copy to the employee. This routine may preclude the possibilities of either too widespread use of reports in compensation cases or having the reports fall into unscrupulous hands.

5. *What Conditions Shall Influence Employment.*—The committee felt that diseases, deformities and disabilities are too variable in degree and extent to permit of a practicable schedule. In such matters the clinical judgment of the examining physician must control, for with him rests the decision of evaluating physical fitness of an individual. To include a long list of diseases and disabilities in the medical committee report might serve to defeat the program. The physician will find those applicants who are physically fit for any occupation, those who are fit for any job but have some minor and correctable defects, those who because of defects must be limited as to occupation and need medical supervision but not necessarily medical attention, and finally those who because of disabilities will be unable to work and who will require medical attention. Examples of the latter group are persons disqualified for work because of (1) active tuberculosis, (2) syphilis in the infectious stages until proof of adequate treatment is submitted, (3) communicable or contagious diseases of any kind until recovery is complete, (4) hypertension only when associated with damaged heart or kidney function or both, and (5) serious defects of vision or hearing in hazardous employment where the safety of others depends on the physical fitness of such afflicted persons.

The schedule of physical examinations proposed by the medical subcommittee is a voluntary plan, and industry has a choice of adopting the program in whole or in part or of rejecting it entirely. The committee attempted to formulate a practical plan of physical examinations to apply to workers in all industries. For the benefit of physicians who will make the examinations and pass judgment on the physical fitness of the applicants, it is essential that they familiarize themselves with all the environmental factors within the plants they supervise. The program is a beginning in the direction of rendering a necessary service to industry and labor. The medical committee hopes that it will be a real factor in the improvement of the health and safety of industrial workers.

DISCUSSION ON PHYSICAL EXAMINATIONS

DR. NATHAN DAVIS, Chicago: I agree with Dr. Woody that it is important to make these examinations personal in character and stress the individual employee. The examiner should be a consultant, who stands between the personnel department and the employee in determining his fitness for certain work and should also work closely with the family physicians and see if there are correctable defects or defects that need observation. Of course, any disease condition or mental worry has a bearing on the efficiency of the employee and may contribute to the failure of the human element. If the plant examiner will take a personal interest in the employees, nervous reactions will be minimized. I feel, as Dr. Hussey said, that the preemployment and periodic examination of all employees should be stressed, and I think that the employer and the office force should be included. The family doctor's lack of knowledge of the working conditions often makes it inadvisable for him to be the plant examiner. The fact that he has a personal interest in the care of the patient is not so important as his ignorance of conditions of employment. I agree with Dr. Hussey that in medical school and afterward, through the efforts of the medical societies, instruction and preparation for the work of a plant physician should be given to men in active practice because many industries have so few employees that they cannot afford to obtain the services of a specialist in that field. Cooperation with the health department is important. The statement that in medical education too much attention is paid to disease and not enough to health is worth stressing not only in industrial medicine but in all medical practice. I agree that x-ray films of the chest should be made in all cases. The cost is rather high, but the development of some of the newer methods for using small film will remove the economic objection to a large extent. The Wisconsin program, so far as it is a voluntary plan being urged on all industry in the community, is of great value. It stresses the importance of the failure of the human factor in the causation of accidents, and general inefficiency in industrial work. One type of examination was not particularly mentioned, and that is a reexamination of men, particularly of those in the older age groups who have been laid off for a time; such periods of inactivity may greatly impair efficiency, particularly of the older men. The examination of the man who has had a layoff is of tremendous importance in preventing difficulties thereafter and in eliminating claims. These examinations, to be universal, must be relatively simple, from the point of view of expense and the time required in making them. An employer in discussing this matter said that it was tremendously valuable if the management group would submit to examinations of the same type that were required of employees, before the employees were examined. When the employees saw that the employers felt these examinations were of value to themselves, it lessened some objection. The other objection on the part of labor will be removed if all men are treated alike, that is, if all with certain defects get the same treatment provided they have been working at the same jobs. They object also to being reclassified, but it is necessary for their own sake if not for the sake of the other employees. In communities where there are industries in which there is a dust hazard, the examination of not only employees but all citizens of the community is important to eliminate tuberculosis from the plant and from the community. The examination of record may well be made available to the family doctor, although reports such as Dr. Brehm describes would be sufficient for the patient and the employer; that is important, as it might gain more cooperation from the family doctor and would give the information for his record which he might not have if the patient remained well.

DR. A. G. KAMMER, East Chicago, Ind.: I noted that the Wisconsin plan recommended a reexamination at two year intervals. I wonder if that is an arbitrary position or whether there is experience behind the decision. I should be glad to know exactly the most practicable intervals for making reexaminations. It would be of interest to know how long an interval passed between the first examinations of the 1,000 men reported by Dr. Woody. The incidence of positive results and the percentages reported at a short interval, for instance, would indicate that reexaminations at short intervals are in order. If, on the other hand, the interval was a long one, it wouldn't mean so much. All interested in this type of work spend time occasionally in arriving at the score, such as Dr. Woody did for us this morning. I think that as time goes on and we more or less begin to report percentages of data we are going to find wide disagreements. His figure of 6 per cent of diagnosed respiratory diseases impresses me as being low. His observation of 12 per cent of men afflicted with disease of the cardiovascular system strikes me as being low. The thing we need to know here is the age of the men and the length of time it took the condition to develop. It doesn't do much good to argue about whether one failure is right, or another, until we start using the same diagnostic procedures and then decide on terminology. I think one of the functions of this group should be to draw up a more or less precise form of language to be used when we get together and talk about our work and compare results. The remark was included in Dr. Woody's paper, in connection with industrial health examinations, that good enough is best. Probably that is a rather practical way of viewing it. On the other hand, the worker in the plant where examinations are regularly made begins to rely on what is told him at the end of each examination, which may come up at the end of every year or every two years, and if you miss some diagnosis the man is probably going to go along and ignore warning symptoms too long. There, again, what is the right thing to do and how far to go are matters which probably have to be settled individually. I was pleased by the extent of the examination recommended by the Wisconsin group. I am wondering why sedimentation rates were not included as routine laboratory procedure. In some 14,000 examinations made in our plant, I think the diagnosis of leukemia has been made once, and the diagnosis of pernicious anemia twice, so I wonder at the practicality of doing a blood smear when looking for conditions of that type. The sedimentation rate, on the other hand, has proved enormously useful in helping us decide who is healthy and who isn't. True, it doesn't establish diagnosis, but it does tell us when our examining doctors have gone to sleep.

DR. J. W. DUGGER, Jackson, Miss.: Our examinations in Mississippi begin at home. Dr. Underwood, executive officer of the State Board of Health of Mississippi, says we must practice what we preach. We are required to turn in to him a record of the physical examinations of all the employees of the state board of health. This includes x-ray study of the chest, blood reaction and many other important points. We start in our own organization, and when I go into plants to sell my program the first thing I tell the employer and the employees is "We are not asking you to do any more than we have to do ourselves." The employer is seen and the program outlined to him. If I can sell my program to the employer, it is up to me to sell it to the employees. The employer will close down his machines when it is convenient and allow me to explain to the employees the benefits to be derived from these examinations. I explain the significance of the tuberculin test. Then I ask them if they would like to have this service and, in every instance, almost every hand will come up. I might add that the health officer in that county is seen, and if there is an industrial physician for that plant of course he is consulted and asked to cooperate. The procedure of our examination includes the personal history, name, address and vocation of the man or woman. What they do in the factory is recorded. Disease experience is also recorded. Each is asked if he has had typhoid immunization in the last three years or smallpox vaccination in the last five years. We examine the ears with the otoscope and observe the nose and throat, as well as looking for gross defects of the teeth and noting whether pyorrhea, decayed teeth, or cavities are present, which are reported. We also examine the heart and take the blood pressure.

DR. WILLIAM J. SHERIDAN, Chattanooga, Tenn.: I come from an industrial city in the mid-South representing quite a few industrial plants, more from the workmen's compensation angle than anything else. A number of these industries have preemployment and periodic health examination. One reason I came to this meeting was to see if I couldn't get a better concept as to who is to be employed and who is not to be employed when the men come before me for physical examination. The problem of syphilis is about the only question that has been answered in my mind. I should like to have in the rest of the discussion something more concrete. I can sympathize with labor and with Mr. Zimmer that the average employee coming up for examination feels he may be turned down, and I think the doctor is taking a great responsibility on his shoulders when he refuses to employ some man who has a wife and dependents. True, that man represents quite an investment for the employer, but he certainly does represent an investment for his family. In further discussion I hope this will be touched on. I want to know what to do with the man 45 years of age who comes up for employment. Is he to be refused employment? I want to know what to do with the fellow with extensive fibrosis of the chest who doesn't have any symptoms. What am I going to do with the man with high blood pressure? What about the one who is overweight or underweight? How about the fellow who isn't in good physical condition and yet you can't put your finger on anything?

DR. J. J. BRANDABUR, Huntington, W. Va.: My remarks are the result of several years of study of the periodic physical examinations in the industry which I represent. There are some medical men who feel that the periodic examination should be voluntary and that it should be made by the family physician. I disagree first because the periodic physical examination was broached as a principle of the American Medical Association twenty-five years ago to the general practitioner, and he has been able to do little about it, so it was up to industry to lead the way. Secondly, people do not want any examination as long as they feel well, and usually by the time they begin to have aches and pains considerable damage has been done. What is more, requiring the family physician to pass on the physical fitness of the employee places too much of a burden on his shoulders. He is not conversant with the hazards of this man's job, as is the industrial physician. In numerous instances we have referred these men back to the family physician for treatment, and we receive a letter stating that the man's general condition is good for his age, but nothing is said about his ability to carry on his work, particularly if it is hazardous. The record of the periodic physical examination should be a matter of strict confidence between the employee and the medical department, and in no instance should a supervisory officer know the defects which are found unless the employee, as protection to himself, wishes them to be known. After all, the supervisory officer is interested in whether that man is able to perform his work efficiently, and even if he knew what the defects were he could not correct them. What is more, the records of these examinations should be kept under the supervision of the medical director and no one should have access to them. There are some who do not agree with me, but if you will discuss the matter with the progressive leaders of labor you will find that one of the greatest objections to either the preemployment or the periodic physical examination rests mainly on this question of secrecy. Labor leaders claim that too often, if the supervisory officer finds out about this or that employee's defects, the employer uses that knowledge as a wedge to get rid of the man. We have conducted the periodic physical examinations in our industry for several years with a great measure of success, and the management feels that one of the main reasons for this success has been that the reports of these examinations are a matter of strict confidence between the employee and the medical department. The reports

are kept under my close supervision. No one is permitted to see the report of any employee without authorization from the employee himself.

Dr. Christopher Legge, Crockett, Calif.: There has been little labor turnover since 1929; many companies are anxious to keep their workers until they are of retirement age, usually 65, and so the average age of the employee has increased. With increasing age, infirmities develop which make him unable to do the hard work to which he was adjusted to begin with. Then we assign him to a soft job. Those soft jobs have become saturated. We must in fairness to ourselves make labor understand that to protect those who have seniority with us we shall have to raise our standard of physical examinations somewhat, because each time we take in a new employee who becomes a problem early and of whom we have to take special care, we don't lay him off. We are beginning to have to do that at the expense of somebody older in seniority. It is a good deal a case of promotion by demerit, because the softer jobs are easier. The night shift jobs are usually day jobs carrying less physical work and probably a little more responsibility, so they are preferred. If we do not maintain a reasonably adequate standard of physical health, we are doing an injustice to the older employees.

Dr. Stanley J. Seeger, Milwaukee: In order to put credit where credit is due, I wish to say that the so-called Wisconsin plan presented to you today is the plan of the Wisconsin State Industrial Commission. It was conceived by that commission and was brought to its present state of perfection by the commission. The commission deserves credit for its broad vision of social problems and of medical problems in the development of this plan. I should like to disclaim any credit at this time for the development of this excellent plan. In the second place, to make clear the matters with which the council has concerned itself I would say that probably 85 per cent of the industrial population of this country is cared for by the general practitioner, who has a relatively casual or, in some instances, a rather specialized interest in the problems of industry. That figure of 85 per cent may be high, but it can be vouched for in some studies, at any rate. We are not so immediately concerned with the level of physical examination in some of the ideally organized, large industries. We all know that problems exist there which are being studied by men spending their full time on work in these industries and who are giving these problems serious attention. In response to one of the discussers, it is the attitude of the council that we do not criticize the work of the leaders in this field. We do not fear for the future of the private practice of medicine because of the activities of men who represent the best in this field, and I think you will find we are on record to that effect. The problem which is arising and which is defining itself very rapidly is How are we going to extend the benefits of physical examination to the small industry which is now being cared for by the general practicing physician? We have brought this problem before you and have suggested means of organization within county and state medical organizations, so that the practicing physician may meet these problems. He must make certain concessions regarding the special nature of x-ray examinations, for instance, and must work out certain economic difficulties. I believe it can be done. I am not one who laments the fact that the general practitioner is not going to be competent to do physical examinations in industry or that his instrumentalities of organization are not competent to meet the problem of public health which is being put before him. I think the practicing physician must be made aware of what is going on in the minds of public health workers and of industrial physicians and surgeons in this regard. On the other hand, there is great need for public health workers to understand what is going on in medical organizations and to utilize the instrumentalities of county medical societies in the furtherance of their work. If this is public health work, I think we must all accept the principle, which has been stated so often by public health workers, that no public health enterprise can be carried to its logical conclusion without the aid of the practicing physician.

January 16—Afternoon

Dr. C. W. Roberts, Atlanta, Ga., in the Chair

DISABILITY EVALUATION

Hearing Loss: Estimation of Disability

Dr. Austin Hayden, Chicago: Hearing has been enormously extended in the past sixty-five years since Alexander Graham Bell invented the telephone. With about 40 million telephones and 100 million radio receiving sets, the human voice can be heard all over the earth. In addition, electric recording preserves sound, so that our voices can be transcribed for reproduction to future generations. In spite of all that, the Illinois Industrial Commission did not until 1929 take any note of compensation for industrial hearing loss. For the total and permanent loss of the hearing of one ear in 1929, 50 per cent of the average weekly wage during fifty weeks and for the total and permanent loss of hearing in both ears 50 per cent of the average weekly wage during 125 weeks was set up. While the compensation for industrial hearing loss, as decided by the Illinois Industrial Commission, is infrequent and small, in civil suits the amounts are sometimes considerable.

I believe that proper standards for compensation and the accurate determination of disability following hearing loss had better be set up by organizations of this kind rather than haphazardly by socially inclined partisan groups. Employees, employer and the public are entitled, I believe, to the real facts about hearing and hearing disability. To ascertain these, hearing must be a definite part of a general physical examination at the beginning of employment, similar to vision. It must be part of subsequent examinations. Hearing must be a definite part of examination after injuries, especially on the head, and hearing expectation in certain employment must be carefully computed. In addition, the fact that hearing deteriorates with age, just as vision does, must be taken into account, and the word "presbycusis" instead of "presbyopia" is probably applicable. Older methods of hearing examination by voice, tuning forks, watches and so forth are no longer adequate. Audiograms are required. Individual tests of each ear separately are essential. They should be qualitative for sound frequency and quantitative (in decibels) for sound intensity, with a continuous frequency fundamental tone audiometer, calibrated at octaves as well as octave letters. They should be performed by or under the immediate supervision of an otologist, throughout the hearing range from auditory to pain thresholds, by both bone and air conduction, in a quiet testing room. Audiograms can be made rapidly, except for the very hard of hearing, and should include otologic history and complete ear examinations with investigation of vertigo when indicated. They are essential for the prescription of modern hearing aids, as well as for the determination of the unpredictable factors that are so common to hearing loss.

This slide shows an audiogram. The Council on Physical Therapy of the American Medical Association, through its Committee on Hearing Aids and Audiometers, is trying to get a standard audiogram to present to industrial men that will be readable and understandable throughout the entire country. We invite you to use that audiogram just as soon as it is ready.

Audiograms should be made on letter size paper for ease of filing. Audiograms may be filed as this slide shows, using a line for the whole chart and the dates at the side to study the progress of the otologic patient.

This slide shows the audiometer itself. Hearing is measured through the most useful part of the hearing scale, that is, from 128 to 8,192 cycles per second. That doesn't mean the entire range of human hearing, which would go from 20 to 20,000 cycles. The audiometer should be used in a quiet room, in a sound-proof room if possible. A room that registered 20 and not more than 30 decibels of sound would be advisable, and many offices can be made into such rooms at a small expense.

This slide shows an instrument that corresponds to the trial frame in ophthalmology. From the measurements that are made with the audiometer, the hearing curve is charted on the audiogram, and the defects in that hearing curve, the up and down steps or the even slopes of hearing loss can be fitted by

this audioscope. By its use the actual variations in sound amplification that the audiogram indicates should go into the patient's hearing aid and can be actually tried by the patient, just as glasses are tried in the trial frame for the correction of visual defects.

In every audiogram there are four lines, two for air conduction, which are generally indicated by unbroken lines, and two for bone conduction, which can be indicated by broken lines.

The individual shown in this slide is quite hard of hearing. He would hear by air conduction probably at 4 or 5 feet, but his bone conduction, which is an index of the condition of his auditory nerve, is way up at the top. He can be fitted splendidly with a bone conduction hearing aid, and his hearing can be brought clear up to the top, can be improved from about 20 feet up to about 4 feet by air conduction.

This slide represents a so-called middle ear or obstructive lesion. There are still four lines there. The bone conduction has come down, the air conduction isn't so bad, but all the lines are closer together, and that represents a mixed perceptive chart that is difficult to fit. You can't tell by looking at the chart definitely whether bone or air should be used, and it is not as favorable as the first one.

Now we have done something about seeing how much correction is necessary. We can tell by using the whisper test how much improvement a hearing aid gives. We can also place the receiver of the audiometer on the transmitter of the hearing aid and make an audiogram of the hearing aid. It is in these cases that the operation of hearing windows, so widely publicized within the last year, has been advised. In no case of which I have seen a record does the improvement after that six hour operation equal the improvement with a properly fitted hearing aid; and whatever the improvement is, the length of time that has elapsed since operation is not sufficient to assure that the improvement will be permanent.

An air conduction loss of 30 or 40 decibels would give hearing of 4 to 6 feet and would be improvable up to 12 to 16 feet by an air conduction receiver.

With the bone conduction, the results are startling. With a loss of 10 decibels by bone conduction, which might be 60 or 70 with air conduction, which might be a hearing distance of only 3 or 4 feet, you can get 20 to 30 feet, and so on down.

The decibel is something that does not submit itself to percentage calculation. For instance, one's heart beat is estimated to be 10 decibels loud. The threshold of pain is said to be 130. It is estimated that way on the audiogram I showed, but 130 doesn't mean 10 times 13 at all. It means 10 trillion times 10, so that the amount of the energy of 10 decibels going in here is increased beyond any calculation in percentage.

This slide shows the multiple parts that are available for hearing aids today. When you see that this transmitter can be combined with this receiver, this amplifier with this ear tip, this battery with any of those, you can readily understand that many hundreds of hearing aids, each one different from the other, can be made. What is the use of so many? It is just like cylinders and spheres in glasses. The irregularities of hearing loss call for amplification at many certain spots in the audiogram and that is accomplished by the use of these variously pitched parts together with the use of filament.

The Committee of Consultants on Audiometers and Hearing Aids of the American Medical Association, Council on Physical Therapy, is standardizing equipment and methods, so that clinical data can be universally interpreted and evaluations of function and loss of function accepted, as has been so well done in ophthalmology. Courts and compensation boards are demanding the same of otolaryngology.

The first audiometer for general clinical use met Council requirements less than three months ago. With the incomparable resources for clinical investigation that American industry provides in its splendid corps of physicians and surgeons, speaking through their Council on Industrial Health of the American Medical Association, cooperation between these two councils will greatly facilitate, for the benefit of all concerned, the accurate estimation in hearing loss quickly, accurately and justly.

Present Status of Estimating Disability from Visual Loss

DR. HARRY S. GRADLE, Chicago: Central visual acuity has been measured by means of the Snellen chart for a century or more, and the results of the Snellen chart are expressed in the form of what appears to be an ordinary fraction. Snellen never intended that to be a fraction; he intended that to be merely an expression in which the numerator was the distance at which the chart should be read and the denominator was the distance at which the chart actually was read. In other words, a vision of 20/20 means that the standard size chart, which should be read at 20 feet, was read at 20, whereas 20/40 means that at 20 feet the individual could only read that chart which should have been read at 40. The expression 20/40 does not mean a loss of 50 per cent of visual acuity. The thing you are to understand is that this was an expression and not a ratio, not a fraction, that led to the confusion. So the committee that was appointed by the Section on Ophthalmology of the American Medical Association in 1919 had to start practically from the ground up.

In the past, estimations had been made on the loss of visual acuity in the injured eye only, based on a percentage of the loss of the total eye. In other words, where one state allows fifty weeks' salary for loss of a total eye, the estimations had been that, if there was 20/40 vision, 50 per cent of that had been lost.

We started on an entirely different basis. We worked out a table which has been widely accepted by the compensation boards of the various states and by many large insurance companies. I thought, for your benefit, we might take this table to pieces today and analyze it and simplify the explanation. The committee started out by estimating how much the efficiency of the individual was decreased by the resultant loss of visual efficiency. We took as the base line from which to work complete total disability of the individual and said that complete loss of visual efficiency is equivalent to the total permanent disability of both eyes and is identical with total permanent disability of the individual. Then it simply is a matter of determining the visual efficiency, and we for the first time took into consideration the efficiency not only of the injured eye but of the uninjured eye as well.

The efficiency of any eye is a question of several factors. The first factor is, of course, the central visual efficiency for distance. The central visual efficiency for distance is measured by the Snellen chart, that is, the ability to recognize letters at an angle of 5 minutes. That is known as 20/20. We accepted the Snellen standard of measurement of central visual acuity at 20 feet under illumination of not less than 3 or more than 10 foot candles. For normal, or 100, 20/20 has been universally accepted by ophthalmologists from time immemorial.

What was the zero line? Total blindness is absolute zero, and it was impossible to estimate the exact evaluation of total blindness. After experimental work, we found that 20/800 represented the maximum loss that could be measured. In other words, if a man could see at 20 feet only such characters as he should be able to recognize at 800 feet, he was practically blind. Therefore we accepted 20/800 as a 99.9 per cent loss in central visual acuity.

The next factor that had to be considered was the visual acuity for near. In the past, they have taken into consideration only vision for distance. That is all right for a man who is working as a common day laborer, but a man who is doing fine work, near, may have comparatively useful distant vision but his near vision would be hopelessly destroyed so that his efficiency would be lost. That necessitated, on the part of the committee, a complete evaluation of vision for near, and we accepted the standard reading distance of 14 inches and on that basis worked out a similar table, where central visual acuity for near is also taken into consideration and measured. We must take into account also the visual field of that eye. The average ophthalmologist does not have the graduated chart for near. Therefore it became necessary to develop this chart, which was published in a later issue of THE JOURNAL.

We have here the Snellen notations at 14 inches based on the American Medical Association table and, correspondingly,

in the diopter or metric system, or on the Jaeger No. 1 system, the size of the letters, the visual angle, and the percentage of visual loss. That figures out exactly as does the visual acuity for distance.

The next factor which must be considered for visual efficiency for one eye is the visual field. There are many disabling effects that cause a decrease in the visual field, so we accepted the standard field, as shown in the perimeter, in which the field is plotted in the eight principal meridians. In measuring visual efficiency of each eye, the visual field must be taken in the eight principal meridians. The amount of field that persists in each meridian is then added together and divided by 420, which gives the total visual field efficiency of that eye in percentage.

So the extent of the field of vision shall be determined by the use of the usual perimetric test methods, a white target being employed which subtends a 1 degree angle under illumination of not less than 3 foot candles, and the result plotted on the industrial visual field chart.

The amount of radial contraction in the eight principal meridians shall be determined. The sum of these eight, divided by 420 (the sum of the eight principal radii of the industrial visual field) will give the visual field efficiency of one eye in percentage.

There is one more factor that must be taken into consideration in determining the visual efficiency, namely the motor ability of that eye. If one eye is disabled so that it cannot move simultaneously with the other, there will result double vision. Therefore it is necessary first to measure and then to plot out the motor function of each eye. When diplopia is present, this shall be plotted on the industrial motor field chart. This chart consists of twenty rectangles, representing the motor field area of the two eyes in question. If diplopia is present, we must test for it at 1 meter with a red light and a candle in each one of these twenty areas, and from the results there is evaluated a definite loss in motor function according to the number of areas in the rectangle in which diplopia exists. In other words, if there is no diplopia there is 100 per cent motor function, whereas if diplopia exists in all twenty fields there is complete loss of motor function.

Now we have the factors that are concerned in the development of industrial visual efficiency of the eye. How shall we evaluate? They are not all of equal value. First, we work out the central visual acuity efficiency. In doing so we take the visual acuity for distance and give to the visual acuity for near a twofold value. In other words, near vision is practically twice as valuable to the industrial laborer as is distant vision. In order thus to attain the central visual acuity efficiency, we take the value of the central visual acuity for distance, to which is added twice the value of the central visual acuity for near, all divided by three. This gives us the central visual acuity efficiency of the eye, taking into consideration the vision for distance and the vision for near, and laying weighted value on them.

For the visual efficiency of the eye we have to multiply the central visual acuity efficiency by the visual field efficiency, the muscle function efficiency. In other words, the central vision, which is composed of distant vision and near vision, times the efficiency of the eye as regards the visual field, times the motor efficiency of the eye, gives us the visual efficiency of the eye in question. That is done to both eyes, but here too there is a weighted value to be given. Perhaps it can be put down in this form. The first calculation is the central visual acuity for distance plus two times the central visual acuity for near, which gives the visual acuity efficiency of one eye. Then the visual acuity efficiency times the muscle function, times the visual field efficiency, gives the result of the visual efficiency of one eye. The injured eye may be the better eye of the two. Consequently we do not speak of the injured eye or the uninjured eye but we speak of the more efficient eye and the less efficient eye.

To obtain the visual efficiency of the individual we take the visual efficiency of the less efficient eye, no matter whether it is the injured or the uninjured eye, and add to that three times the visual efficiency of the more efficient eye, and that divided by four gives the visual efficiency of the individual. If we have visual efficiency of the individual in terms of percentage, subtracting that from 100 per cent gives us the amount of loss of efficiency of the individual, basing that on the complete disability of the person as a whole. All through the pamphlet are given various illustrations to show how it works out.

On page 10 is the authorization. This report, as published by the Committee on Compensation and adopted by the Section on Ophthalmology, was adopted by the House of Delegates in 1925. It then became the official report of the American Medical Association on the estimation of appraisal of loss of visual efficiency subsequent to injury.

Let me call attention to paragraph 2, page 4, probably the most troublesome aspect. If a man has a traumatic cataract, that cataract is either absorbed or operated on, and there results with the proper correcting glass 100 per cent central visual acuity for distance and for near, to what is that man entitled? It is impossible for him to wear the glass over the affected eye and use that eye and the uninjured eye simultaneously because of the size and image of the two eyes. Is he entitled to compensation for the loss of an eye because he cannot use the two eyes simultaneously? On the other hand, if the other eye was injured he still would have the perfect eye to fall back on. Therefore the committee decided that, if there is a greater difference than 4 diopters of spherical correction between the two eyes, the best vision that can be obtained with not more than 4 diopters difference in glasses shall be that which is used. It works out practically that if the uninjured eye is normal and the injured eye necessitates glasses for correction, the individual obtains about 75 per cent of the compensation that will be awarded for the complete loss of an eye. Probably that is the fairest plan that could be made.

There are certain types of ocular disturbances which are beyond possible estimation: disturbances of light and dark, various deformities of the lid resulting from scar tissue, muscle disturbances that are not included under diplopia, and things of that sort which have been worked out, each one on its own basis. There can be no mathematical appraisal of such losses. One should not be in too big a hurry to estimate a visual loss. We believe that at least four months should elapse from the time of injury before the examination is concluded on which the appraisal is to be based. We also recognize that in the course of time certain improvements will occur, but it is impossible to drag the time out too long. Therefore twelve months is the maximum time that should be allowed to elapse before the examination is made.

This is an extremely simple table, which merely requires a little understanding of the analysis. If you figure again the analysis that is based on each eye individually, realizing that the analysis of each eye is based merely on visual acuity for distance, visual acuity for near, visual field and motor function and put them into the formula in which the weighted values occur, you will have no difficulty in estimating the percentage of complete disability of the individual that may result from injury to one or to both eyes.

Presentation of Dr. Ludwig Teleky

Dr. Ludwig Teleky, lately of Vienna, was introduced by Dr. Robert T. Legge, of Berkeley, Calif.

DR. LUDWIG TELEKY, lately of Vienna: I am happy to be in this beautiful country, and not only that I can be here but that I can work here. It is very odd for me to work in a country which has so many scientists in my field and who have done so much good work. So I came here to learn and to see the work which has been done by your scientists.

Are Uniform Standards of Evaluation Practicable?

DR. EARL D. MCBRIDE, Oklahoma City: The physician called on to assist in the cause of justice by rendering expert testimony is of value to the side of the case employing his services or else he is not called to testify. The testifying physician must conduct himself according to the rules of the court. He cannot elect to relate and explain his observations and opinions in his own manner. Questions are cleverly designed to elicit desirable answers. The clinical data are twisted to meet a given situation. Scientific deductions are discredited by sly inference. Facts are distorted to meet a theory of the case.

Hypothetical questions are propounded to fortify or impeach evidence. The scientific background of the medically trained mind does not conform well to the legal methods of arriving at conclusions of fact. Proof of reality in the development of scientific facts is accomplished through systematic research. Facts to be proved are based on a chain of reasoning directed by facts already established. The scientific minded physician dislikes decisions involving a monetary issue and recoils from any action which may trespass on the scientific spirit.

In view of this situation I should say that uniform standards of evaluating disability are practicable but certain adjustments will be necessary before they can be suitable for recognition by either the courts or the medical profession:

First, the judiciary must remedy the system which permits inconsistencies due to partiality in the scientific presentations of medical experts.

Second, the medical schools must improve the curriculum of medicolegal instruction to train the student how to meet judicial inquiries with the same degree of confidence expected of him in diagnosing disease or in consulting with others of his own profession.

Two adjustments which would be beneficial on the part of the judiciary are:

1. Doctors called as medical witnesses on opposite sides of the case should be permitted to consult and to compare and present their observations and diagnostic opinions with the same degree of serious, scientific intent as is expected of them in the practice of medicine.

2. Prestige of a specialist should be acknowledged by the court as rated by medical bodies and boards established for the purpose of standardization. The qualifications admitted only by the doctor as he takes the stand should not be relied on.

The medical profession could make the following adjustments:

1. Medical bodies governing actions of their individual constituents could adopt standard rules and regulations covering qualifying standards and professional behavior of the doctor in court.

2. Medical associations of national scope might prepare and adopt certain fundamental principles of medical standards in evaluation of personal injury and permanent disability.

When such adjustments are accomplished, standards for evaluating disability will be not only practicable but authoritative. There will be more confidence in the testimony of medical experts.

The problem of setting up such standards is a pressing issue. Arbitrary ratings and pension payments have been set up by law that seem to meet the need in a number of situations; however, it will never be possible through medical analysis to tabulate or grade equitable evaluations of permanent disability by dogmatic scale. As doctors we cannot tabulate percentages of disability common to all forms of physical alterations of the body and expect to establish an adequate schedule that will meet individual circumstances of working capacity. For years I have attempted to point out that the medical examiner should confine himself to his field of knowledge and experience when determining percentages of disability. This method of arriving at a conclusion should be as scientific as that of arriving at a diagnosis in human illness. The doctor is actually not competent to evaluate disability with respect to manual labor or specific vocations because he is not trained to know their technical requirements. He is competent, however, to determine the extent of loss of use of a part of a man's body as compared with the normal. Therefore, as a basis of procedure in evaluating permanent disability I have recommended that we rely on the determination of the extent of function of the body or parts of the body as they are affected by disability. Such a determination falls conclusively within the field of medical practice. Function, or the ability to perform useful activity, is one standard unit of measurement which can be used authoritatively by the medical expert in his disability appraisal and the court may then arbitrate loss of earning capacity and adjust monetary awards.

A practicable formula is established by integrating function into seven component factors, each of which is given a percentage value in its relation to 100 per cent. These factors and their relative percentages of value are designated as follows: (1) quickness of action, 10 per cent; (2) coordination of movement, 20 per cent; (3) strength, 20 per cent; (4) security, 10 per cent; (5) endurance, 20 per cent; (6) safety as a workman, 10 per cent; (7) prestige of normal physique, 10 per cent. Much more could be said on this subject, which would require a volume to contain the technical details contributing to the successful use of the formula presented. Uniform standards of evaluation of disability are practical. The true medical status of disability is not under the prevailing system.

The Evaluation of Disability Following Industrial Accidents

DR. HENRY H. KESSLER, Newark, N. J.: The extent of bodily injury has been used in arriving at an evaluation of reduced earning ability. Theoretically this method is fundamentally incorrect, for it is not the lesion that is to be indemnified but the effects of that lesion on the earning capacity of the injured person. A similar lesion in different individuals may not have the same effect. Age, sex, occupation, social condition, economic stress and opportunity for employment may have an important bearing on the ultimate loss in earnings of an injured workman.

There is no system of pathology through which the capacity to work can be clearly determined. Nevertheless society has forced the physician to derive a social judgment from pathology. A man lame in two legs may be fully capable of work, while a neurotic person may be completely incapacitated. This produces an inconsistency and conflict that is frequently found between the pathology of defect and the economy of working capacity. While lead poisoning and spondylitis are medical illnesses, incapacity to work is a social illness.

It may be readily seen why there is so much discrepancy in the estimates made by several physicians in the same case. This is not the result of lack of honesty in the examining physicians as much as the lack of a common ground on which to meet. Moorhead, in rating permanent disability after fractures, suggested that three factors be taken into account: the anatomic result, the functional result and the cosmetic defect. McBride has suggested the use of seven psychophysical traits as arbitrary criteria for estimating disability. Since the range of human capacities is limitless it would be fallacious to select these traits to the exclusion of others. The method of ascribing fixed values to each factor and the method of determining each value is left to the opinion of the examiner. No attempt is made to measure actually the degree of impairment of the individual trait.

I have recommended the use of function as a criterion for the evaluation of permanent disability. I have defined function as it applies to the extremities, as motion of the joints, power of the muscles and coordination and control from the brain through the peripheral nerves. I have further described a detailed technic for the actual measurement of these qualitative components of physiologic function.

General tests of bodily function or efficiency have been used by many. The pulse rate and blood pressure are taken before and after exercise and compared with arbitrary normals; in addition, specific functional tests have been developed for the extremities and for vital organs. All these tests, however, are false; first, because they do not evaluate the total body but select and abstract only a small part of it; second, because of the mechanical fallacy.

Physicians, as well as laymen, frequently commit the error of undervaluing the individual's capacity to work. It is often assumed that a physical defect causes limitation of functional activity and hence limitation of industrial usefulness. This line of reasoning is frequently invalid. While it must be conceded that the disability may limit the number of opportunities open to the disabled person, it is far from correct to assume that a physical disability always means incapacity to work. Regardless of the yardstick used, the judgment is apt to be erroneous. This is due to the ever present psychic component and to the presence of the safety factor.

The case histories of 4,404 men with permanent orthopedic disabilities, covering a period of thirteen years, were exam-

ined by Anderson, and the actual jobs they had held for that period of time were listed. The data indicated that among 10,176 jobs held by these men there were 635 different types of work, representing 70 per cent of the 557 occupations and occupational groups listed in the United States census of 1930. These figures give striking evidence of the versatility of these handicapped men. How do these physically disabled persons manage to make their physiologic adjustments? How do they accommodate themselves to the unusual demands made by disease or by congenital or acquired defects? The answer will depend on the presence of human safety factors and personality adjustment.

A person can get along with one third of a kidney or one fourth of a liver, without a stomach, without a large intestine, with one tenth of the pancreas, with one third of the thyroid, with one fourth of the parathyroid, with one tenth of an adrenal, with one tenth of an ovary, with one half of the total volume of blood and with 20 per cent hemoglobin. There is also a factor of safety in the ability to substitute one foodstuff for another.

Personality maladjustment plays an even more important role in the causation of incapacity to work than the physical deformity. It may be so great as to suppress the individual completely.

We are faced with this practical problem of assisting the industrial commission in the rating of permanent disability. The problem can be solved in two ways: A method which I rely on is the use of an actual work demonstration on the part of the patient. This method was carried out through the use of a curative workshop consisting of a complete woodwork and paint shop and all the tools used in carpentry and cabinet making with the exception of automatic machinery. There is a weaving department with two looms, where rugs and other articles are woven, and a fairly complete print shop, with type cases, press and other equipment. Here the injured person or the convalescent is gradually adjusted back to employment conditions without overtaxing his physical resources. Here the man with lowered morale and lost confidence has an opportunity to establish himself under favorable and sympathetic auspices yet with a mild discipline that develops his morale. The work shop has been in operation fourteen years and it has demonstrated its value as a therapeutic agency by rehabilitating badly disabled persons in difficult cases and by serving as a laboratory for determining work capacity and employability.

On the basis of an actual demonstration of work the patients are arbitrarily divided into three groups: those who are nonproductive, those who show a fair productiveness and those who are very productive. Arbitrary estimates of disability are allotted as follows: 60 to 100 per cent for the nonproductive group, 33 to 50 per cent for those showing fair productiveness and 0 to 10 per cent for the very productive group. The second method is the adoption of schedules or principles of evaluations proposed by representative medical bodies. The work of the Section on Ophthalmology of the American Medical Association is an excellent example of such a contribution. The suggestions of the Council on Physical Therapy with respect to audiometer tests of hearing defects is a further illustration. In European compensation practice, schedules and methods of evaluation submitted by private physicians not associated with the official administrative agency are frequently given official approval and are utilized in making determination. The tables of Liniger and Molineus in Germany and those of Sachet, Imbert, Forgue and Jeanbrau are examples of this procedure.

DISCUSSION ON DISABILITY EVALUATION

DR. W. P. WHERRY, Omaha: I am here only as an observer, representing one of the larger special societies, but in that capacity I do appreciate the necessity for what Dr. Kessler called dictatorial standards. I admit that variables must always enter into a medical evaluation of a defect. It is the medical man who must estimate the variables. However, when compensation and disability are discussed in terms of dollars, there are other professions that ask assistance along mathematical lines, more or less, and medicine must adjust itself to setting up base lines, a common ground, whether it is a matter of hearing, vision or functional defects of workable parts of the human body. From that basis we perhaps shall have more of an acceptance in court in compensation adjustments than if everything is left to the whims of a medical mind. One thing that has been said against medicine is that six expert witnesses in hearing defect cases will none of them agree. I think it is the expression of many lawyers that a medical witness is used for the effect on the jury rather than for the acceptable factual data. That is a travesty on medicine. One of the objectives of the specialty which I represent is not to put matters on the basis of an exact science, because when anything becomes an exact science it ceases to be a science; but I also feel that with a common base line medicine will have a better acceptance. Much of this economic pressure has been brought on medicine because of the high cost of poor medicine, not the high cost of good medicine, and I can't help but feel that in the evaluation of defect problems poor judgment can sometimes be put in the same category with poor medicine.

QUESTION: I should like to ask Dr. Hayden what type of intensity of noise he regards as damaging to workmen's ears, and the best type of protection to afford him against such damage.

DR. AUSTIN HAYDEN, Chicago: That depends on the constancy of the noise and on sudden or temporary increases of noise, as, for instance, in a plant where explosives are used to blow food out of reservoirs. We made some studies and found that the workers in a plant of that sort had a very considerable loss of hearing in the upper tone scale. Prevention means many things that many workers don't like to do. If they use plugs of cotton or wool or other material in the external auditory canal, the jar through the bones of the skull may be a factor even though the canal is closed. The changes begin, both in war and in such occupations as I have mentioned, in the upper tone scale. Not enough work has been done yet to determine whether that can be prevented or not. The same is true of boilermakers' disease and may be true of caisson workers. A suggestion has been made that perhaps the best individual to put into a noisy occupation is one who is hereditarily disposed to chronic loss of hearing. That is to say, if he has a strong history of otosclerosis, maybe he is the fellow that ought to go into that work because his ears are going to get bad anyway. That has been proposed by the United States Public Health Service, and it has some merit.

DR. EARL D. MCBRIDE, Oklahoma City: The point I was making in my paper is that if we have a formula, something to go by after we have done all of our examination, after we have used our measuring apparatus and made our tests, as Dr. Kessler suggests, we can analyze the results according to that formula. I have tried it with several different individuals, when we had a claimant's attorney, a company attorney, a commissioner and myself, and we weren't 5 per cent apart when we asked ourselves the same questions through that same formula. If we can hit on something that will give us a uniform method of reasoning, then I feel we shall not be far wrong when we come into the industrial court with these disabilities.

DR. H. H. KESSLER, Newark, N. J.: I think Dr. McBride has emphasized the important point, the question of agreement on certain bases and formulas. There is one other point and that is the notion that so many differences exist between individuals. If you carefully scrutinize the studies that have been made with respect to the actual traits in human capacities in all individuals that have been carefully measured, you will find those differences not as great as you think them. It is remarkable, but you will find that rarely does the efficiency, the productivity or the dexterity of one individual exceed by more than twice that of the less efficient individual. I mention that because so much emphasis has been made on these minor physical defects. I think this emphasis is due not so much to a rational, scientific appreciation of their importance as to a peculiar emotional factor. This emotional factor is tabu. Actual studies of accident proneness in handicapped persons have revealed that the accident proneness of such an individual is somewhat less than that of the normal group.

MEDICAL LEGISLATION

MEDICAL BILLS IN CONGRESS

Changes in Status.—S. 685 has passed the House, proposing to create a Bureau of Water Pollution Control in the United States Public Health Service. Before the bill was passed, the House accepted an amendment proposed by the House Committee on Rivers and Harbors striking from the bill the provisions proposing federal grants-in-aid to assist states, municipalities and public bodies to construct treatment works to prevent pollution of navigable waters and substituting therefor an authorization whereby the Reconstruction Finance Corporation may make loans to finance the construction of treatment works. S. 2284 has passed the Senate and House authorizing the President to appoint in the navy 100 acting assistant surgeons for temporary service.

Bills Introduced.—S. 3461, introduced by Senator Murray, Montana, and H. R. 8730, introduced by Representative Keller, Illinois, propose to provide for the general welfare by enabling the several states to make more adequate provisions for the control and prevention of industrial conditions hazardous to the health of employees. These bills contemplate that there shall be appropriated for the fiscal year ending June 30, 1941, the sum of $1,000,000; for the fiscal year ending June 30, 1942, the sum of $2,000,000; for the fiscal year ending June 30, 1943, the sum of $3,000,000, and thereafter such sums as may be necessary to carry out the provisions of the act. Such amounts, it is proposed, will be allotted to such of the several states as have submitted plans acceptable to the Secretary of Labor. A plan may not be approved by the Secretary of Labor unless it provides for its administration by the state labor department or other agency charged with the administration of the general labor laws of the state or under their supervision; provides for compulsory reporting by employers to the state agency charged with the administration of the plan of all cases of disability or death due to any disease caused, accompanied or aggravated by exposure to conditions of employment hazardous to health; provides for an industrial hygiene agency to develop and appraise methods of controlling industrial conditions hazardous to the health of workers, and provides that the state agency or agencies administering the plan will make such reports, in such form and containing such information as the Secretary of Labor may from time to time require and comply with such provisions as the Secretary of Labor may from time to time find necessary to insure the correctness and verification of such reports. The Senate bill is pending in the Senate Committee on Education and Labor, the House bill in the House Committee on Labor. S. 3435, introduced by Senator Reynolds, North Carolina, proposes to provide for domiciliary care and medical and hospital treatment for former members of the military and naval services who are suffering with tuberculosis. H. R. 8672, introduced by Representative Lemke, North Dakota, proposes to prohibit the use, sale, purchase or exchange of any seal, stamp or certificate of another person, association, organization or company denoting or implying equality or superiority in purity, quality, usefulness or effectiveness of any drug, food, cosmetic, therapeutic lotion, therapeutic device or diagnostic or surgical assists in comparison or competition with other products of like kind, or similar nature, unless, such seal, stamp or certificate has been approved by the Federal Trade Commission. H. R. 8695, introduced by Representative Tolan, California, proposes to provide grants to the states for assistance in the rehabilitation of disabled persons incapacitated for normal employment. H. R. 8696, introduced by Representative Tolan, California, proposes federal grants to assist states to provide money payments to needy individuals who are 18 years or more of age and who are totally and permanently disabled and incapable of self support by reason of physical defect or impairment of the body, other than the mind. H. R. 8765, introduced by Representative Pearson, Tennessee, proposes to provide for free hospitalization and medical attention for all veterans of the World War and the Spanish-American War in government facilities. H. R. 8794, introduced by Representative Thill, Wisconsin, proposes to permit federal income tax payers to deduct amounts actually paid during the taxable year for medical, dental, surgical or nursing treatment or hospitalization of the taxpayer or his spouse or any dependent for whom a credit is allowable. H. R. 8800, introduced by Representative Tolan, California, proposes to amend the Social Security Act so as to provide benefits for persons physically disabled to such a degree that they are not capable of self support.

DISTRICT OF COLUMBIA

Bills Introduced.—H. R. 8670, introduced, by request, by Representative Bolles, Wisconsin, proposes to establish a Board of Funeral Directors and Embalmers for the District of Columbia. H. R. 8692, introduced by Representative Randolph, West Virginia, proposes to enact a new podiatry act for the District of Columbia. Under the provisions of the bill any person is to be regarded as practicing podiatry who furnishes, or advertises to furnish, podiatry service or performs or causes to be performed podiatric operations of any kind, diagnoses, or professes to diagnose, prescribes for or treats or professes to treat disease, pain, deformity, deficiency, injury or physical condition of human feet or adjacent structures. Among the subjects on which applicants are to be examined are pathology, materia medica, surgery, and clinical and orthopedic podiatry.

STATE MEDICAL LEGISLATION

Kentucky

Bills Introduced.—H. 532 proposes to appropriate $150,000 for the establishment of a state tuberculosis sanatorium in Johnson County, to be under the control and supervision of the department of welfare. H. 539 proposes a procedure whereby hospitals may be reimbursed by the state for the expense of caring for indigent persons injured in motor vehicle accidents.

Bill Introduced.—H. 534, to amend the uniform narcotic drug act, proposes to define narcotic drugs so as to include cannabis.

Mississippi

Bill Introduced.—H. 552 proposes to authorize boards of supervisors of the several counties to levy, in addition to the levy for indigent sick, a special tax of not exceeding 1 mill on all the taxable property of the county, to provide necessary medical, dental or other treatment to children up to 16 years of age in need of and unable to procure the services and treatment referred to.

New York

Bills Introduced.—S. 1348 proposes that an applicant for a license to operate a motor vehicle must be examined by a physician at least once every three years and be certified to as physically fit to drive a motor vehicle. S. 1351 proposes that on the trial of any action arising out of acts alleged to have been committed by any person arrested for operating a motor vehicle while intoxicated, the court may admit evidence of the amount of alcohol in the defendant's blood, the test for which must be taken within two hours of the time of the arrest. Evidence that there was at that time 0.05 per cent or less by weight of alcohol in the blood is prima facie evidence that the defendant was not in an intoxicated condition sufficiently to lessen his driving ability. Evidence as to the presence of from 0.05 per cent to 0.15 per cent is relevant evidence but is not to be given prima facie effect in indicating the ability of the driver to operate the vehicle. Evidence as to 0.15 per cent, or more, is prima facie evidence that the defendant was in an intoxicated condition sufficiently to lessen his driving ability. S. 1395 proposes that the board of education of a city or school district maintaining vocational schools must provide health services for the pupils of such schools. The health service is to include the necessary personnel to afford adequate physical examination and is to include roentgenographing of the chest of pupils. S. 1400, to amend the provisions of the workmen's compensation act requiring a physician attending an injured worker to make designated progress reports, proposes to require the physician to

submit a progress report every two weeks, or at more frequent intervals if requested by the industrial commissioner. No claim for medical or surgical treatment is to be enforceable unless the progress reports are made. S. 1412 and A. 1760, to amend the workmen's compensation act, proposes that an injured employee may, when care is required for an injury to the foot, select to treat him any podiatrist authorized by the industrial commissioner to render podiatry care. S. 1418 and A. 1761, to amend the provisions of the medical practice act relating to the practice of physiotherapy, proposes that a person who has practiced physiotherapy under a license granted prior to July 1, 1930, who on submission of proper credentials or by satisfactory examination has shown that he has received sufficient instructions and training, may be granted the right to practice physiotherapy without being required to do so under the supervision of a duly licensed physician, as the present law requires.

Virginia

Bills Introduced.—S. 284 proposes to enact a separate chiropractic practice act and to create an independent board of chiropractic examiners to examine and license applicants for licenses to practice chiropractic. The bill proposes to define chiropractic as "the philosophy, science and art of locating, any method preparatory to, and the adjustment of the articulation of the spinal column and adjacent bony structure to release the transmission of nerve energy to all parts of the body to correct the cause of disease." A licentiate is to be authorized to use such methods as are taught by chiropractic schools and colleges to further assist nature in establishing the normal transmission of nerve energy but is not to be entitled to use operative surgery, obstetrics, osteopathy nor to administer or prescribe any drug or medicine. H. 390 proposes to prohibit the operation of a maternity hospital unless licensed so to do by the state board of health.

WOMAN'S AUXILIARY

WINNERS IN THE HYGEIA CONTEST

The American Medical Association offered $300 in cash prizes to the state and county auxiliaries which obtained the largest number of subscription credits to *Hygeia*. The contest covered the period from Oct. 1, 1939, to Jan. 31, 1940.

Cash prizes were awarded as follows:

Group 1. Auxiliaries with a membership of from one to thirteen:

First prize, $35, to Childress-Collingsworth-Hall counties, Texas, Mrs. S. H. Townsend, Hygeia chairman, Childress, Texas.

For the second prize, $20, no county qualified.

For the third prize, $10, no county qualified.

Group 2. Auxiliaries with a membership of from fourteen to twenty-three:

First prize, $35, to Baldwin County, Ga., Mrs. H. D. Allen Sr., Hygeia chairman, Milledgeville, Ga.

Second prize, $20, to Chelan County, Wash., Mrs. A. G. Young, Hygeia chairman, Wenatchee, Wash.

Third prize, $10, to Clark County, Wash., Mrs. C. B. Hutt, Hygeia chairman, Vancouver, Wash.

Group 3. Auxiliaries with a membership of from twenty-four to forty-two:

First prize, $35, to Vermilion County, Ill., Mrs. G. W. Walbright, Hygeia chairman, Danville, Ill.

Second prize, $20, to Will-Grundy County, Ill., Mrs. D. W. Killinger, Hygeia chairman, Joliet, Ill.

Third prize, $10, to Duval County, Fla., Mrs. Raymond H. King, Hygeia chairman, Jacksonville, Fla.

Group 4. Auxiliaries with a membership of from forty-three to 69:

First prize, $35, to Buchanan County, Mo., Mrs. Charles H. Werner, Hygeia chairman, St. Joseph, Mo.

Second prize, $20, to Lehigh County, Pa., Mrs. Henry D. Jordan, Hygeia chairman, Allentown, Pa.

Third prize, $10, to Cook County, Ill., Mrs. E. M. Egan, Hygeia chairman, Chicago.

State winners:

First prize, $25, to state of Washington, Mrs. J. B. Robertson, Hygeia chairman, Tacoma, Wash.

Second prize, $15, to state of Illinois, Mrs. W. J. Wanninger, Hygeia chairman, Chicago.

Honorable Mention was given to the following county chairmen:

Kern County, Calif., Mrs. Eric Colby, chairman, Bakersfield.

Dallas-Guthrie County, Iowa, Mrs. E. J. Butterfield, chairman, Dallas Center.

Cape Girardeau County, Mo., Mrs. A. M. Estes, chairman, Jackson.

Jackson County, Mo., Mrs. Ralph Myers, chairman, Kansas City.

LaFayette County, Mo., Mrs. C. T. Ryland, chairman, Lexington.

Lane County, Ore., Mrs. C. E. Hunt, chairman, Eugene.

Polk-Yamhill-Marion counties, Ore., Mrs. Burton A. Myers, chairman, Salem.

Fayette County, Pa., Mrs. John B. Hibbs, chairman, Uniontown.

Westmoreland County, Pa., Mrs. J. M. Mayhew, chairman, Greensburg.

Bowie-Miller County, Texas, Mrs. W. Decker Smith, chairman, Texarkana.

Salt Lake County, Utah, Mrs. Byron Rees, chairman, Salt Lake City.

Cowlitz County, Wash., Mrs. P. H. Henderson, chairman, Longview.

King County, Wash., Mrs. Hale Haven, chairman, Seattle.

Portage County, Wis., Mrs. Maurice G. Rice, chairman, Stevens Point.

Racine County, Wis., Mrs. F. B. Marek, chairman, Racine.

Sheboygan County, Wis., Mrs. A. J. Brickbauer, chairman, Plymouth.

Other counties that have reached or gone over their quota were:

Prairie County, Ark.; Arapahoe County, Colo.; Mesa County, Colo.; Bulloch-Evans-Chandler County, Ga.; Tift County, Ga.; Adams County, Ill.; St. Joseph County, Ind.; Dubuque County, Iowa; Cloud County, Kan.; Labette County, Kan.; Breathitt County, Ky.; Iberville Parish, La.; Washington Parish, La.; Washington County, Minn.; Alcorn County, Miss.; Omaha-Douglas County, Neb.; Cayuga County, N. Y.; Pottawatomie County, Okla.; Benton County, Ore.; Berks County, Pa.; Bucks County, Pa.; Huntingdon County, Pa.; Lebanon County, Pa.; Mifflin County, Pa.; Laurens County, S. C.; Hunt-Rockwall-Raines County, Texas; Kaufman County, Texas; Weber County, Utah; Kitsap County, Wash.; Pierce County, Wash.; Snohomish County, Wash.; Walla Walla County, Wash.; Whatcom County, Wash.; Kanawha County, W. Va.; Raleigh County, W. Va.; Rock County, Wis.; Washington-Ozaukee County, Wis.

The final result in this year's contest was 8,371 subscriptions, as against 6,242 received in the contest last year. The contest last year covered only the two months December 1938 and January 1939.

To the Hygeia chairmen, officers and members of the various county and state woman's auxiliaries who have assisted in making this contest a success, Mrs. Eben J. Carey, National Hygeia chairman, and the circulation manager of *Hygeia* express appreciation.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

CALIFORNIA

Indian Service Hospital Closed.—The U. S. Indian Service Hospital at Fort Bidwell has been closed to patients. Owing to the extremely isolated location of the hospital, it has been found difficult to secure the continuous service of physicians. The personnel turnover has been unduly large and there have been many periods of time when no physician was available in the hospital by reason of lapses between assignments. The opening of Indian units at the Weimar Joint Sanatorium in Placer County and at the Wish-i-ah Sanatorium in Fresno County has made it possible to provide care for tuberculous Indians from northern California to better advantage than at the Fort Bidwell Hospital. General hospital care for the Indians in Modoc County will now be undertaken at local civil institutions. A generalized clinic and dispensary service under the charge of a full time Indian Service physician and public health nurse will be established at Alturas to provide dispensary care and public health services for the Indian population of the northeastern part of the state.

GEORGIA

University News.—Dr. Virgil P. W. Sydenstricker, professor of medicine, University of Georgia School of Medicine, Augusta, has been awarded a grant of $6,000 by the Markle Foundation to continue his studies on pellagra.

District Meeting.—Among others, the speakers before the Sixth District Medical Society recently were Drs. Virgil P. W. Sydenstricker, Augusta, on "Conditions Associated with Deficiency of the B Group Vitamins" and David Henry Poer, Atlanta, "Use of Vitamin K as Preparation for Surgery in Common Duct Obstruction."

The Block Memorial Lecture.—Dr. Percival Bailey, professor of neurology and neurological surgery, University of Illinois College of Medicine, Chicago, will deliver the sixth annual E. Bates Block Memorial Lecture before the Fulton County Medical Society, Atlanta, March 18, on "Indications for Operations on Cases of Brain Tumor."

Society Honors Veteran Members.—At a recent meeting of the Fulton County Medical Society, Atlanta, certificates of honorary membership were presented to Drs. William L. Champion, Odom O. Fanning, John P. Kennedy, Pleasant L. Moon and Archibald Smith, Atlanta, and Michael Hoke, now of Beaufort, S. C. Certificates recognizing twenty-five years' membership in the society were presented to Drs. Thomas Blake Armstrong, William A. Arnold, Joseph Rex Barfield, Frank L. Eskridge, Henry Grady Estes, John B. Fitts, Harry N. Kraft, James Calhoun McDougall, Stephen C. Redd, Henry Clifford Sauls, Charles H. Paine, Atlanta; Kimsey E. Foster, College Park, and Chris H. Pinson, Hapeville.

ILLINOIS

Society News.—Dr. William Edward Chamberlain, Philadelphia, discussed "Pitfalls in X-Ray Diagnosis" before the Peoria City Medical Society on February 13.——Dr. Alfred J. Kobak, Chicago, discussed "Management of Prolonged Labor" before the Madison County Medical Society on February 2. ——Dr. Leon Unger, Chicago, addressed the Macon County Medical Society in Decatur, January 30, on "Newer Phases of Migraine."——At a meeting of the Sangamon County Medical Society in Springfield, February 1, Dr. Lawrence S. Fallis, Detroit, discussed "The Technic of the Repair of Inguinal Hernia Including Fascial Transplants."

Chicago

Personal.—Dr. William H. Haines has been appointed assistant to Dr. Harry R. Hoffman, director of the Cook County Behavior Clinic. Dr. Haines is assistant clinical professor of neurology at Rush Medical College.

Society News.—Dr. Bela Schick, New York, will address the Chicago Society of Allergy, March 18, on "Allergy and Immunity." —— A joint meeting of the Chicago Pediatric Society and the Chicago Tuberculosis Society will be addressed, March 19, by Dr. Jay Arthur Myers, Minneapolis, on "Relationship of First Infection to Clinical Tuberculosis." —— Dr. Frederic W. Bancroft, New York, will discuss "Traumatic Abdomen" before the Chicago Society of Industrial Medicine and Surgery, March 18.——Among others, Dr. Andrew F. M. deRoetth, Spokane, Wash., will speak on the "Hypofunction of the Lacrimal Gland" before the Chicago Ophthalmological Society, March 18.

Clinic on Necropsies.—An educational clinic, limited to members of the medical and funeral professions, will be held at the Stevens Hotel, March 19, under the auspices of the Chicago Medical Society, Institute of Medicine of Chicago, Chicago Pathological Society, Chicago Hospital Council, Cook County Hospital, Chicago Board of Health, coroner of Cook County, Chicago Association of Embalmers, and Funeral Services Associated. The program will include motion pictures on the technic employed in the performance of a complete autopsy and subsequent restoration of the subject by embalming. Lectures on the social, legal and technical aspects of the autopsy will be delivered by Dr. Carl W. Apfelbach and on the technic of subsequent restoration by embalming by F. A. Cutler, director of research and education, National Selected Morticians.

Dr. Max Cutler Honored.—Dr. Max Cutler, director of the Chicago Tumor Institute, will be honored at an all day meeting on the cure and control of cancer in Atlanta, Ga., March 29. The sessions will start at 10 a. m. in the Henry Grady Hotel and will be under the sponsorship of the state department of health, the Cancer Commission of the Medical Association of Georgia and the Georgia Division of the Women's Field Army of the American Society for the Control of Cancer. Principal speakers at the morning session will be Dr. Cutler and Dr. Leonard A. Scheele, U. S. Public Health Service, Washington, D. C., who will discuss "Early Diagnosis and Treatment of Cancer" and "Cancer as a Public Health Problem" respectively. In the afternoon a conference on the diagnosis and treatment of cancer with the exhibition of cases will be held at the Sheffield Cancer Clinic of the Georgia Baptist Hospital. In the evening Dr. Cutler will be presented with an official citation by Governor Rivers in recognition of his "outstanding achievement in the realm of cancer cure and control." At the same time he will be appointed an honorary lieutenant colonel on the military staff of the governor. Dr. Cutler formerly lived in Athens and graduated at the University of Georgia in 1918.

MASSACHUSETTS

Society News.—At a meeting of the New England Society of Physical Medicine, February 28, a symposium on the treatment of arthritis was presented by Drs. James Sydney Stillman Jr., Jose P. Bill, Herman A. Osgood and Loring T. Swaim, Boston. —— Dr. William Malamud discussed "The Problem of the Neuroses in General Practice" before the Worcester District Medical Society, February 14, and Saul Rosenzweig, Ph.D., "Experimental Neurosis." —— Civic and other agencies are cooperating in the second Worcester Health Week, February 25-March 2, initiated by the Worcester Y. M. C. A.

New Department of Anatomy at Tufts.—Dr. and Mrs. George G. Averill, Waterville, Maine, have given $42,200 to the Tufts College Medical School, Boston, to establish the "Dr. and Mrs. George G. Averill Department of Anatomy in Memory of Prof. Charles P. Thayer." Dr. Thayer was one of the "original seven" founders of the school in 1893 and first head of the anatomy department. Dr. Averill graduated from Tufts in 1896. The gift will provide the entire top floor of a new medical school building which will be situated in downtown Boston at the New England Medical Center. The gift will be made available during 1940 and 1941, the announcement stated.

MISSISSIPPI

Hospital News.—The new Beacham Memorial Hospital was dedicated at Magnolia recently with Dr. Rudolph Matas, New Orleans, giving the principal address.

Society News.—Members of the faculty of the University of Mississippi School of Medicine, University, recently presented the following program before the Clarksdale and Six Counties Medical Society at Clarksdale: Drs. Robert M. Moore, "Mortality in Appendicitis"; David S. Pankratz, "Influence of Barbiturates on the Gravid Uterus"; James B. Looper, "Treatment of Narcolepsy"; Vernon B. Harrison,

"Diagnosis of Gonorrhea"; Eugene V. Bramlett, "Leukorrhea"; James R. Simms Jr., "Conservative Treatment of Pelvic Inflammatory Disease"; Wilbur F. Potter, Ph.D., "Cardiac Physiology," and Robert P. Walton, Ph.D., "Pharmacology of Cardiac Drugs."

Personal.—Drs. W. H. Banks, Philadelphia, and Samuel E. Eason, New Albany, were recently appointed members of the state board of health for five year terms.——Dr. Byron O. Garner, Greenwood, of the Adams County Health Department, has been appointed temporary health officer in LeFlore County, filling the vacancy caused by the death of Dr. Levi A. Barnett, Greenwood.——Dr. Isaac C. Farmer, formerly of Mendenhall, has been selected to be health officer of the newly formed health unit in Tate County with headquarters in Senatobia. ——Dr. Francis S. Dixon has been appointed superintendent of the Natchez Charity Hospital in Natchez, succeeding Dr. Louis M. Magee, resigned.

NEW JERSEY

Society News.—Dr. William Wayne Babcock, Philadelphia, addressed the Essex County Medical Society, Newark, March 14, on "Surgical Considerations in Intestinal Obstruction."—— Dr. Horace J. Williams, Philadelphia, addressed the Camden County Medical Society, Camden, March 5, on "Otitis Media and Mastoiditis."——Dr. Leon Herman, Philadelphia, will address the Academy of Medicine of Northern New Jersey, Newark, March 21, on "Urogenital Tuberculosis." Dr. Alfred W. Adson, Rochester, Minn., presented a paper before the section on medicine and pediatrics, March 12, on "Diagnosis and Treatment of Recurring Sciatica."

NEW YORK

State Society Moves.—Offices of the Medical Society of the State of New York, which have been in the building of the New York Academy of Medicine since 1926, have been moved to an entire floor in the Research Institute Building, 292 Madison Avenue, New York.

Physician Leaves Fund for New Building.—Dr. Dewitt H. Sherman, for many years professor of pediatrics at the University of Buffalo School of Medicine, left a bequest of about $225,000 to the university for a new medical building, according to the *New York State Journal of Medicine*. In addition, Mrs. Sherman has made a gift of $200,000 for the fund. Dr. Sherman died February 1.

Buffalo Clinical Day.—The University of Buffalo School of Medicine will sponsor the Sixth Annual Clinical Day, April 20, with the following guest speakers:

Dr. Newton D. Smith, Rochester, Minn., The General Practitioner's Anorectal Problems.
Dr. James G. Carr, Chicago, Obscure Fever.
Dr. Albert M. Snell, Rochester, Minn., Some Problems Presented by the Jaundiced Patient.
Dr. Henry M. Thomas Jr., Baltimore, Hypertension: The Modern Conception of Its Causes and the Results of Medical and Surgical Treatment.
Dr. Temple S. Fay, Philadelphia, Observations on Human Refrigeration.

New York City

Sixth Harvey Lecture.—René J. Dubos, Ph.D., associate member, Rockefeller Institute for Medical Research, will deliver the sixth Harvey Society Lecture of the current series at the New York Academy of Medicine, March 21. His subject will be "Utilization of Selective Microbial Agents in the Study of Biological Problems."

In Memory of Dr. Farrand.—A memorial meeting in honor of the late Dr. Livingston Farrand was held at the New York Academy of Medicine on January 30 under the auspices of various organizations with which Dr. Farrand was associated. The speakers were:

Charles F. W. McClure, Sc.D., Princeton, N. J., representing the class of 1888 at Princeton University, of which Dr. Farrand was a member.
Dr. Charles J. Hatfield, Philadelphia, the National Tuberculosis Association.
Homer Folks, LL.D., the Rockefeller Tuberculosis Commission in France.
Eliot Wadsworth, LL.D., Boston, the American Red Cross.
Albert R. Mann, LL.D., Cornell University.
Dr. James Ewing, Cornell University Medical College.
Albert G. Milbank of the Milbank Memorial Fund, whose address was read by Dr. Frank G. Boudreau.
Dr. Thomas Parran, Washington, D. C., the U. S. Public Health Service.
Dr. Simon Flexner, the Public Health Council of the State of New York.
Barklie Henry, the New York Hospital.
George E. Vincent, Ph.D., the Rockefeller Foundation.

OHIO

University News.—Dr. Leonard G. Rowntree, Philadelphia, will deliver the Roger Morris Memorial Lecture for 1940 at the University of Cincinnati College of Medicine, March 25. Dr. Rowntree's subject will be "The Suprarenal Gland and Its Diseases."

Personal.—Dr. Claude V. Davis, Pennsville, has been appointed a member of the state medical board to succeed the late Dr. Lee Humphrey, Malta.——Dr. Benjamin W. Dudley Keever, Centerville, was honored by the Montgomery County Medical Society at a meeting in Dayton, January 15, on his completion of fifty-five years of practice. The society gave him a fountain pen and pencil set.——Dr. Howard Dittrick, Cleveland, has been appointed editor of *Current Researches in Anesthesia and Analgesia*, succeeding the late Dr. Francis Hoeffer McMechan, Rocky River.

OREGON

New Health Officers.—Dr. Frederick T. Burke, Timber, has been appointed health officer of Washington County, succeeding Dr. Richard N. Sherwin, Hillsboro, who resigned.—— Dr. Charles J. Hedlund, formerly of Atwater, Minn., has been appointed health officer of a new health unit in Baker County.

Personal.—Dr. John E. Weeks, Portland, has been appointed honorary professor of ophthalmology at the University of Oregon Medical School, Portland. Dr. Weeks, now 86 years old, was for many years professor of ophthalmology at University and Bellevue Hospital Medical College, New York, and has been professor emeritus since 1920. He was chairman of the Section on Ophthalmology of the American Medical Association in 1902 and president of the American Ophthalmological Society in 1923.

PENNSYLVANIA

Hospital News.—A new $600,000 children's preventorium was placed in operation recently at the Pennsylvania State Tuberculosis Sanatorium at South Mountain in Franklin County. The building will accommodate 340 children; 215 were moved into it from the old buildings.

Medical Service Plan Approved.—The house of delegates of the Medical Society of the State of Pennsylvania at a special meeting in Harrisburg, February 28, voted to establish a low cost medical service plan for wage earners in the lower income brackets. The plan would be put in operation first in the fifth councilor district, including Dauphin, Cumberland, Lebanon, York, Adams, Lancaster, Franklin, Fulton and Perry counties. Rates, as reported in a newspaper account, will be $2.50 a month for a single member, $2 additional for his wife, $1.50 additional for one child and $1 for each additional child.

Society News.—Dr. Julius M. Rogoff, Pittsburgh, addressed the annual combined dinner meeting of the Valley Medical Society and the McKeesport Academy of Medicine, February 26, on "Endocrinology: Its Present Status."——Dr. William A. Marsh, Mount Pleasant, among others, addressed the Westmoreland County Medical Society, March 5, at the Mountain View Hotel near Greensburg on "Treatment of Hip Joint Fracture in the Aged."——Dr. Tom Outland, Elizabethtown, addressed the Dauphin County Medical Society, Harrisburg, March 5, on "Treatment of Compressed Fracture of the Spine." ——Dr. Joseph C. Yaskin, Philadelphia, addressed the Harrisburg Academy of Medicine, February 20, on "Painful Conditions Related to the Peripheral Nerves and Their Roots."

Philadelphia

Meeting on Cancer.—The Philadelphia County Medical Society devoted its meeting, March 13, to a program on cancer. The speakers were William U. Gardner, Ph.D., New Haven, Conn., on "Relation of Hormones to Cancer"; Drs. Edmund P. Halley, Decatur, Ill., "Preoperative Irradiation in Breast Carcinoma with Microscopic Studies"; Catharine Marfarlane, "An Experiment in Cancer Control," and Stanley P. Reimann, progress report from the division of cancer control, Pennsylvania Department of Health.

Society News.—Dr. Oscar V. Batson addressed the Philadelphia Laryngological Society, March 5, on "The Circulation of the Head, Especially Venous, with Reference to Osteomyelitis, Brain Abscess and Malignant Metastasis."——Dr. Alvin F. Coburn, New York, addressed the College of Physicians of Philadelphia, March 6, on "Faulty Handling of Streptococcus Haemolyticus in Relation to the Development of the Rheumatic Lesion."——Speakers at a meeting of the Obstetrical Society of Philadelphia, March 7, were Drs. Newlin F. Paxson on "Chronic Nephritis and Pregnancy," and Franklin L. Payne

and Craig W. Muckle, "Clinical Experience with Stilbestrol."——Dr. Readie Garfield Snyder, New York, addressed the Philadelphia Rheumatism Society, March 7, on "Therapy of Chronic Arthritis; Including a Discussion of the Use of Gold Salts and a Preliminary Report on the Use of Activated Ergosterol."

TEXAS

Dallas Hospital Institute.—The Dallas County Hospital Council is sponsoring a hospital institute in Dallas during the week of April 8 for employees of the member hospitals. Meetings will be held every evening at St. Paul Hospital, with papers covering many phases of hospital activity, followed by panel and round table discussion. Speakers are drawn from local hospitals. Twenty-four institutions are affiliated with the hospital council. Hospital employees in adjacent communities have been invited to attend. Mr. A. C. Seawell, assistant superintendent of the Baylor Hospital, is president of the council.

Society News.—Drs. Thomas E. Smith and James H. Herndon addressed the Dallas County Medical Society, Dallas, February 8, on "Surgical Treatment of Hemorrhoids" and "Typhus Fever" respectively. Speakers before the society, March 28, will be Drs. Charles D. Bussey, on "Gastrojejunal Ulcer—A Sequel to Gastric Surgery"; Milford O. Rouse and Cecil O. Patterson, "Foreign Bodies in the Stomach as Observed Through the Flexible Gastroscope," and Walter G. Reddick, "Treatment of Pneumonia with Sulfanilamide, Sulfapyridine and Sulfathiazol."——Drs. William W. Fowler and Max H. Grow, Dallas, addressed the Denton County Medical Society, February 1, on "Diagnosis and Treatment of the Ophthalmological and Rhinological Manifestations of Allergy" and "Allergy in Childhood" respectively.

WASHINGTON

Puget Sound Surgical Society.—Dr. Howard K. Gray, Rochester, Minn., was the guest speaker at the annual meeting of the Puget Sound Surgical Society in Seattle, March 8-9. At a dinner Friday evening, March 9, at the Rainier Club Dr. Gray made an address on "Problems Associated with Occlusive Diseases of the Extrahepatic Bile Ducts." He conducted clinics Saturday at the King County Hospital and at the formal banquet in the evening spoke on "Significance and Surgical Management of Ulcerating and Neoplastic Lesions of the Stomach."

Society News.—Dr. Owen H. Wangensteen, Minneapolis, will be the guest speaker at the annual meeting of the Tacoma Surgical Club, March 23. The general subject for the day will be "Complications of Abdominal Surgery."——A symposium on mental diseases was presented at a meeting of the Spokane County Medical Society, Spokane, February 8, by Drs. Marinus W. Conway, Harry N. Roback, Cecilia E. Schlotthauer, Herbert A. Perry and Charles W. Miller Jr., all of the staff of the Eastern State Hospital, Medical Lake.——Dr. Herbert E. Coe, Seattle, addressed the Walla Walla Valley Medical Society, Walla Walla, February 14, on developmental and congenital defects.——Dr. Carl P. Wagoner, Seattle, addressed the Pierce County Medical Society, Tacoma, February 13, on "The Common Cold."

WISCONSIN

District Meeting.—The Ninth Councilor District Medical Society held its winter meeting in Wisconsin Rapids on January 25 with the following speakers: Drs. Lyman A. Capps, Marshfield, on "External Eye Diseases"; Allen L. Millard, Marshfield, "Pericarditis," and Ovid O. Meyer, Madison, "Recent Advances in Hematology."

University News.—Dr. Walter Freeman, Washington, D. C., addressed the University of Wisconsin Medical Society, Madison, February 14, on "Experiences in the Treatment of Schizophrenia by Means of Prefrontal Lobotomy." Dr. James W. Kernohan, Rochester, Minn., gave a lecture under the auspices of Alpha Omega Alpha at the university, March 8, on "Cerebral Changes Associated with Endocarditis."

Society News.—Drs. Mandred W. Comfort and Howard K. Gray, Rochester, Minn., discussed medical and surgical aspects, respectively, of diseases of the gallbladder at a meeting of the Polk County Medical Society, Balsam Lake, January 18.——Drs. Henry A. Sincock and James W. McGill, Superior, addressed the Chippewa County Medical Society, Chippewa Falls, January 23, on "The Practical Problem of the Physician Doing a Combined Obstetric and Pediatric Practice" and "Contraction Ring Dystocia" respectively.——Dr. Joseph M. King, Milwaukee, addressed the Fond du Lac County Medical Society, Fond du Lac, January 18, on "Hand Infections."——Dr. Frederick A. Coller, Ann Arbor, Mich., was the guest speaker at the meeting of the Medical Society of Milwaukee County, February 9, on "The Diagnosis of Acute Abdominal Surgical Lesions."——Dr. Albert D. Kaiser, Rochester, N. Y., addressed the Milwaukee Pediatric Society, February 14, on "The Tonsil Question" and Dr. Francis D. Murphy, Milwaukee, on "The Fluid Balance."

GENERAL

Meetings in Pittsburgh in March.—The American Association of Pathologists and Bacteriologists will have its fortieth annual meeting in Pittsburgh at the Mellon Institute, March 21-22. Among more than fifty papers will be the following:

Dr. Frank L. Apperly, Richmond, Va., The Significance of the Varying Distribution of Cancer in North America.
Drs. John T. Bauer and Paul H. Schraer, Philadelphia, Late Pathologic Effect of High Voltage X-Rays on the Human Lung.
Dr. Stuart W. Lippincott, Montreal, Canada, Histopathologic Studies on a Fatal Case of Hypervitaminosis D.
Dr. Simeon Burt Wolbach, Otto A. Bessey, Ph.D., and Dr. Roy L. Swank, Boston, Vitamin Deficiency and Lesions of the Nervous System.
Drs. Robert C. Grauer, Chester F. Beall and George R. Wilson, Pittsburgh, Endometrial Response to Stilbestrol in Radium Menopause.
Drs. George R. Lacy and Mortimer Cohen, Pittsburgh, The Bacteriology of Postpartum Febrile Conditions.
William H. Feldman, D.V.M., and Dr. Henry F. Helmholz, Rochester, Minn., The Presence of Viable Tubercle Bacilli in Lesions of the Ghon Complex of Children.
Dr. Warren C. Hunter, Portland, Ore., Etiology, Incidence and Fate of Deep Leg Vein Thrombosis in 300 Unselected Autopsies.

The American Association for Cancer Research will meet at the Mellon Institute, March 19-20, with the following speakers, among others:

Dr. Emmerich V. Haam and Leona Cappel, Columbus, Ohio, The Influence of Hormones Upon Cells Grown in Tissue Culture.
Dr. Joseph H. Farrow, New York, Treatment of Inoperable Carcinoma of the Breast with Testosterone Propionate.
Murray J. Shear, Ph.D., and Dr. Harold L. Stewart, Bethesda, Md., Carcinogenic Activity of Nitrogen-Containing Benzene Derivatives.
Drs. Michael B. Shimkin and Hugh G. Grady, Bethesda, Md., Carcinogenicity of Stilbestrol and Estrone.
Fritz Bischoff, Ph.D., M. Louisa Long and Dr. John Jerome Rupp, Santa Barbara, Calif., Influence of Induced Hibernation on the Growth Behavior of Mouse Neoplasms.

The American and Canadian Section of the International Association of Medical Museums will hold its thirty-third annual meeting March 20, with an exhibition at Mellon Institute for the benefit of all the societies, March 20-22. A special feature of the program will be a symposium on the use of plastics in museum work. Col. James E. Ash, curator of the Army Medical Museum, Washington, D. C., is president of the section.

American College of Physicians.—The twenty-fourth annual session of the American College of Physicians will be held in Cleveland, April 1-5, with headquarters at the Cleveland Public Auditorium and under the presidency of Dr. Oliver H. Perry Pepper, Philadelphia. The annual convocation will be Wednesday evening, April 3, when Dr. Pepper will give his official address; Dr. Charles F. Martin, emeritus dean and emeritus professor of medicine, McGill University Faculty of Medicine, Montreal, Canada, will give the convocational address, and the John Phillips Memorial Medal will be presented to René J. Dubos, Ph.D., New York. One general session will be devoted to a symposium on military medicine with speakers from the U. S. Army and Navy. Among the speakers at other sessions will be:

Drs. Joseph Kaufmann and Louis Lowenstein, Montreal, A Study of the Acute Leukoses.
Drs. Harrison F. Flippin and Leon Schwartz, Philadelphia, The Comparative Effectiveness of Sulfathiazol and Sulfapyridine in Pneumococcic Pneumonia.
Dr. Everett N. Collins, Cleveland, Treatment of Ulcerative Colitis with Sulfanilamide.
Dr. George W. Thorn, Baltimore, The Role of the Gonadal and Adrenal Cortical Hormones in the Production of Edema.
René J. Dubos, Ph.D., New York, The Effect of Specific Agents Extracted from Soil Micro-Organisms Upon Experimental Bacterial Infections.
Drs. Henry Field Jr., William D. Robinson and Daniel Melnick, Ph.D., Ann Arbor, Mich., Vitamins and Peptic Ulcer.
Dr. Edward L. Bortz, Philadelphia, Social Components in Medicine.
Dr. Mark P. Schultz, U. S. Public Health Service, Washington, D. C., Blood Cholesterinase in Rheumatic Fever.
Dr. George Gill Richards, Salt Lake City, Tularemic Pneumonia.
Drs. Louis E. Prickman and Herman J. Moersch, Rochester, Minn., Bronchostenosis Complicating Allergic and Infectious Asthma.

General sessions will be held in the afternoons with the exception of the symposium on military medicine, which will be Monday evening. Mornings will be devoted to clinics and demonstrations in Cleveland hospitals and to lectures at the auditorium. A program of panel discussions will be presented

each afternoon just before the general sessions. The annual banquet will be Thursday evening, with Dr. Howard T. Karsner, Cleveland, as toastmaster and Mr. Grove Patterson, editor of the Toledo *Blade*, as the speaker.

Bequests and Donations.—The following bequests and donations have recently been announced:

Children's Memorial Hospital, Chicago, $25,000 by the will of Mrs. Della Ross Stack.

International Cancer Research Foundation, Philadelphia, $100,000 (with the exception of a few minor bequests) from the will of the late Mrs. Gertrude Wellington as a memorial to her husband, who died of cancer.

University of Pennsylvania Hospital, Philadelphia, $13,000 to endow a free room and a free bed.

Jewish Hospital, Philadelphia, $2,000 by the will of the late Bernard Selig.

St. Christopher's Hospital for Children, Philadelphia, $3,000 by the will of the late Elijah Dallett.

Lankenau Hospital, Philadelphia, $5,000 from the estate of William H. Norris after the remarriage or death of his widow, and $10,000 for maintenance of two beds by the will of the late Julia Preuss.

Quakertown Hospital, Quakertown, Pa., $10,000 from the estate of Miss Emma Roeder and $2,500 from the estate of a Miss Sterner.

Presbyterian and Lankenau hospitals, Philadelphia, will share approximately $8,500 from the estate of Miss Minerva Booth, following a settlement in the Orphans' Court.

Government Services

Army Experience for Physicians

Physicians under 35 years of age who are desirous of obtaining extended active duty with the army but who do not hold reserve commissions are being offered appointments in the Medical Corps Reserve in the grade of first lieutenant, in order to permit them to be placed on such duty. Captains and lieutenants are at present being offered excellent assignments throughout continental United States, and it is hoped that authority will be granted to permit some officers to go to Hawaii and Panama. In addition to having a new and busy experience in the practice of medicine, the average officer finds the pay and allowances attractive. The pay and allowances for a married first lieutenant amount to approximately $263 a month; for a single first lieutenant to approximately $225 a month; for a married captain to approximately $316 a month, and for a single captain to approximately $278 a month. In most cases the pay and allowances would apply, as government quarters are not usually available for officers on extended active duty. In the few instances in which government quarters are available, the amounts would be $40, $60, $60 and $80 less per month respectively. In addition, the officer is reimbursed for mileage traveled from his home to his station, and on completion of his tour of duty he is reimbursed similarly for the travel to his home.

Application for one year of active duty, or for appointment in the Medical Corps Reserve with a view to obtaining one year of active duty with the army, should be requested at once by a letter addressed to the commanding general of the corps area wherein the physician permanently resides. In addition, the application should contain concise information regarding permanent address, temporary address, number of dependents, earliest date available for active duty, and the fact that internship has been (or will be) completed; it should be accompanied by a report of physical examination recorded on the army form W. D. A. G. O. 63, which may be obtained from any army station. From the group of reserve officers placed on extended active duty since August 1939, more than 25 per cent of those within the age requirements of 32 years of age or less for commission in the regular army Medical Corps found military service sufficiently to their liking to cause them to take entrance examinations for the regular army. Corps areas and their headquarters are as follows:

First Corps Area (Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut), Army Base, Boston, 9.

Second Corps Area (New York, New Jersey, Delaware), Governor's Island, New York.

Third Corps Area (Pennsylvania, Maryland, Virginia, District of Columbia), Post Office and Court House, Baltimore.

Fourth Corps Area (North Carolina, South Carolina, Georgia, Florida, Alabama, Tennessee, Mississippi, Louisiana), Post Office Building, Atlanta, Ga.

Fifth Corps Area (Ohio, West Virginia, Indiana, Kentucky), Fort Hayes, Columbus, Ohio.

Sixth Corps Area (Illinois, Michigan, Wisconsin), Post Office Building, Chicago.

Seventh Corps Area (Missouri, Kansas, Arkansas, Iowa, Nebraska, Minnesota, North Dakota, South Dakota), New Federal Building, Omaha.

Eighth Corps Area (Texas, Oklahoma, Colorado, New Mexico, Arizona), Fort Sam Houston, San Antonio, Texas.

Ninth Corps Area (Washington, Oregon, Idaho, Montana, Wyoming, Utah, Nevada, California), Presidio of San Francisco, San Francisco.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Feb. 10, 1940.

The Medical Profession and the War

A Central Medical War Committee, representing all branches of the medical profession, has been set up under government plans. To this committee the government refers all questions regarding the supply of medical personnel arising out of the war. It satisfies the demands for this personnel both for the civil population and for central and local government authorities. In every area of the country there is a local medical war committee through which the central committee operates. The local committees will be reelected next March and thereafter annually. Before allocating a practitioner for national service, the central committee consults the local committee of the area in which the practitioner resides. The demand is distributed in the form of quotas among the local committees, regard being paid to such local factors as density of population and proportion of practitioners in the area. The local committee satisfies the quota in such a way as will secure the least interference with local medical services and the greatest possible regard to the wishes of the individual practitioner. Similarly, demands for specialist personnel are received from the services in numerical form for surgeons, anesthetists, dermatologists, venereologists, psychologists, radiologists and so on. The central committee satisfies itself as to the specialist qualifications and experience of the individuals before recommending them for appointment. But in the case of London practitioners a committee of the royal colleges, known as the Committee of Reference, has the responsibility of approval.

At present no practitioner can be allocated to the services without his consent. This arrangement will continue as long as the whole medical profession is included in "the reserved occupations." But conscription may be applied to the medical profession. If and when this occurs, it is anticipated that the same central and local arrangements will continue and regard be paid to the wishes of practitioners, though the needs of the country must be paramount. Heavy demands for medical personnel for general duty with the forces are now being received. The scheme of the British Medical Association for the protection of practitioners for whole time war service is in general operation.

The Medical Uses of Radium

The Medical Research Council has published a summary of the research work done with radium or radon during 1938 at more than twenty hospitals and other institutions, most of which hold radium on loan from the council. The discovery of neutron in 1932 and of artificial radioactivity in 1934 aroused great interest. But the prediction that artificial radioactive bodies would replace radium is not yet in sight of fulfilment. One of the council's staff, Dr. F. G. Spear, joined in a biologic research on neutron action from October 1938 to March 1939 with Prof. John H. Lawrence in California, where the first cyclotron was installed. As a result of his report facilities are to be provided in this country for research on neutron irradiation by means of a cyclotron.

CANCER OF THE BREAST

At the Marie Curie Hospital, London, removal is advocated in operable cases. Cases considered to be on the borderline of operability are given preoperative roentgen treatment followed by removal. Either a lethal dose is given, followed by operation several months afterward, or a modified x-ray dose is followed by operation in from seven to ten days. Whether subsequent postoperative treatment is given depends on the clinical and pathologic appearance. The mode of access is by two fields,

one medial and the other lateral, to include the breast and the axilla. Inoperable cases are generally treated by x-rays. A few have been given interstitial radium or a combination of the two. Recurrences are treated mainly by x-rays or teleradium.

At St. Bartholomew's Hospital a histologic investigation of the effects of radium, begun in 1932, has been completed. Of fifty specimens of breast and axillary contents removed three months after radium had been inserted, active-looking carcinoma cells were present in ten, degenerate cells in seventeen and no residual growth in the remaining twenty-three. There is some evidence that gland deposits vary, like the primary growth, in their response to radium. Although there were several striking cases in which large axillary metastases disappeared, fourteen of fifty specimens showed active growth in the glands three months after what had been regarded as adequate irradiation.

CANCER OF THE LARYNX

The Birmingham General Hospital reports that since 1934 all cases of intrinsic cancer of the larynx considered suitable have been treated by the fenestration method associated with the names of Finzi and Harman and that this has given good results in several cases of precancerous conditions of the larynx. This operation is considered to have a wider field than laryngofissure. It has been extensively applied to neoplasms which have not only invaded one cord but have extended round the commissure to the other. The technic consists in exposure of the thyroid ala and cutting a window subperichondrially in the cartilage so as to accommodate from eight to ten needles, each containing 1 mg. of radium, placed side by side across it. At the original operation difficulty was found in getting the skin incision to heal. This has been overcome by smearing the site of implantation with a paste of bismuth subnitrate and iodoform.

TELERADIUM THERAPY

The most extensive investigation of teleradium therapy has been at the Radium Institute, London. The volume of tissue irradiated has comprised the primary growth and its probable direction of spread. The direction of the beam is so determined that a homogeneous radiation is delivered to the whole of this tissue block. To minimize the total amount of radiation delivered to the patient's body, the primary growth is irradiated through the glandular regions. A dose of from 5,000 to 8,000 roentgens has been delivered in forty-two days. When the growth is early and localized, complete disappearance can be expected. Affected lymphatic glands in close proximity also disappear. When the primary growth and the glands are in an advanced and inoperable stage, the disease can be made to disappear in a small proportion of cases and distressing symptoms may be relieved in a large proportion. It is too early to make definite pronouncements, but it appears that the treatment of carcinoma of the mouth and throat by the radium beam is at least as satisfactory as by surgery or interstitial radium. In cancer of the breast the beam is directed to the primary growth by glancing fields across the surface of the body so as to avoid overirradiation of the structures beneath the breast.

BERLIN

(From Our Regular Correspondent)

Jan. 27, 1940.

Speed Acceleration During Flight

Dr. Gauer recently discussed in *Der deutsche Militärarzt* the effect of speed acceleration on air pilots. He said that the least indisposition of the pilot, lasting less than a second, is sufficient to produce a catastrophe, in view of the fact that even under optimal conditions of a normal reaction time of 0.2 second the airship at a speed of 600 kilometers an hour covers a distance of 30 meters unsteered before the pilot, guided by optical sense impressions, is able to maneuver. The cause of the disturbances which may arise does not lie in the speed itself but in the centrifugal force involved. Experiments made during recent years showed that endurance depends chiefly on the magnitude of centrifugal force, on its direction and duration, on individual variations and on the position of the pilot. At the heart of the problem are the changes in hydrostatic pressure in the vascular system. Strenuous flights should not be taken without a breakfast. To take off on an empty stomach or on only a cup of tea or a cigaret, as is usually done, means a decided loss of power of resistance in the endurance of speed acceleration. It is safer to avoid as much as possible the action of centrifugal force than to resist it by increasing vascular regulation. The best course is to place the pilot in his ship on his back or his stomach. The circulation can then endure great speed acceleration without strain. However, the technical difficulties of placing the pilot in a dorsal or ventral position are immense. An increased power of resistance cannot be acquired by training. During the progress of infectious diseases, and immediately after, the power to resist the action of centrifugal force is low, no matter whether the infection is relatively harmless or not. The limits of human endurance of speed acceleration in air navigation have not yet been reached.

Insulin Shock Therapy

Dr. Büdingen reported to the Berlin society of psychiatrists and neurologists the results obtained with insulin shock therapy in the free psychiatric clinic of the University of Berlin. Insulin was given to 134 patients, fourteen of whom were nonschizophrenic. Complete remissions amounted to 11.2 per cent, social remissions to 16.4 per cent, amelioration to 17.1 per cent and no influence to 55.3 per cent. If nonschizophrenic cases are excluded, 61.7 per cent remained uninfluenced. The treatments were carried out strictly according to Sakel's procedure and lasted on the average three months. Improvements were often only transient. Büdingen regards insulin therapy as contraindicated in true schizophrenia but indicated in cases of psychosis that show symptoms occurring in schizophrenia but which, according to their complete clinical picture, require different classification.

Gonorrheal Arthritis Secondary to Blood Transfusion

At the Children's Hospital in Cluj, A. Jancu, C. Oprisiu and N. Domincovici in the *Monatsschrift für Kinderheilkunde* reported the case of a male infant aged 8 months, suffering from furunculosis. Two transfusions of the mother's blood were undertaken. Four days later the infant's temperature rose and painful swellings of several joints set in. An exploratory puncture disclosed gonococci. The infant was treated with azosulfamide and the condition healed except for a few traces. The infant's mother had been suffering from arthritis for nine years, a sequel to gonorrhea. No gonococci were found in her blood. In spite of this negative finding the child's arthritis must be attributed to the blood transfusions, because determination of gonococci in the blood is rarely successful.

Personal

Prof. Ludwig Fraenkel, former professor of gynecology and obstetrics in Breslau, completed his seventieth birthday April 23. A pupil of the pathologic anatomist Grawitz and of gynecologists Hegar, Sänger and W. A. Freund, he began his academic career in Breslau in 1905 and became associate professor in 1909 and full professor and director of the university woman's clinic in 1922. In 1934 he, like many others, was retired. Fraenkel's scientific contributions in his field deal with the function of the corpus luteum, hydatid moles, choriomas, placenta praevia, ovulation and menstruation. His monographs on the normal and pathologic sex physiology in woman, the physiology of female genital organs and clinical pathology of tumors of endocrine glands in relation to the genital system and his books on social obstetrics and gynecology (1928) and the prevention of conception (1932) were much discussed. Fraenkel, whose

personality and ability as a clinician and teacher are greatly esteemed and who lectured in the United States on several occasions, is now living in Montevideo, Uruguay, and is active as a gynecologic consultant. A dedicatory issue of the *Anales de la Facultad de Medicina de Montevideo* is in preparation, in which also North American physicians are largely represented.

STOCKHOLM

(From a Special Correspondent)

Jan. 7, 1940.

The Transport of the Sick and Injured

The problem of motor ambulance services throughout Sweden has of late been tackled from several angles, and many of the advances made must be put to the credit of Surgeon General (retired) Fritz Bauer, whose activity in this field has been ceaseless. The Hospital Standardization Committee and the National Red Cross Society first explored the possibilities of providing the country, rural areas included, with an efficient network of motor ambulances. But, as the years passed and the toll of the roads mounted every year, it became obvious that the motor ambulance was by itself a too costly solution of the problem. Attention was therefore turned to other possibilities, such as the conversion of motor busses, motor lorries and motor cars, both private and for hire, into extemporized motor ambulances. It is particularly the ordinary motor car which at the present time is receiving attention as the most likely key to the riddle.

There are already some 300 motor cars in Sweden fitted so as to be converted into extemporized motor ambulances in an emergency, and among the taxicabs in Stockholm there are twenty-five which can serve this purpose. Their owners are under contract with the Stockholm hospital service to turn them into motor ambulances when required. Surgeon General Bauer advises the prospective purchasers of private motor cars to stipulate with the makers for the necessary fittings without any extra charge. When a car has already been purchased, and when it conforms to the standardized requirements of extemporized motor ambulances, it is possible to make the necessary changes at a cost of less than 100 kronor ($24). The standardized stretcher need not cost more than from 60 to 70 kronor (about $15). A four seater can be fitted to take one recumbent patient on the stretcher in addition to one person sitting up and the driver. A seven seater can be made to accommodate one stretcher patient and three persons sitting up, as well as the driver. Alternative disposals of the stretcher have been devised, but the most effective system is the one in which the stretcher is introduced into the car from behind and is secured to the floor of the car. Under the guidance of Dr. Rolf Bergman, who is in charge of the fever hospital of Stockholm, instructions have been drafted for the disinfection of extemporized motor ambulances after they have conveyed infectious cases. These instructions are printed on the back of the contract between the car owner and the hospital authorities.

The Frequency of Mild Chronic Encephalitis

In the old university town of Lund, Prof. Henrik Sjöbring has for several years made his psychiatric clinic a remarkably effective clearing house for all sorts and conditions of ailments for which only a generation ago there would have been no appropriate labels. To be sure, the process of labeling is at times still somewhat tentative, and the dividing line between functional psychoses and psychoses with an organic basis is not always as clearcut as one would like. Every patient attending this clinic undergoes an analysis of his personality with a view to its basic features, before the development of serious symptoms, being made clear. Such an analysis is often helpful in linking up troublesome symptoms of the present with constitutional characteristics in the past. As the weeding out proceeds, it becomes possible to give such labels as slight schizophrenia, syphilis of the central nervous system, and psychoses with a traumatic, epileptic or toxic basis.

In addition to these psychoses, which can be accounted for by a reference to some organic lesion or other, there is a quite large group which till recently has baffled definition and which would now seem quite appropriately to come under the diagnosis of mild chronic encephalitis. Dr. Erik Rydén, who is attached to Professor Sjöbring's clinic, has undertaken a special study of this condition, which he has found so common that some fifty cases of it can be recognized as such every year at this clinic. Though the basis is organic, the psychic symptoms are so dominating that it is little wonder that these patients often are sent to a psychiatric hospital. The patient often refers the onset of his troubles to some infectious disease such as influenza or measles, since which he has never been quite well. Diseases due to some virus or other would seem to be particularly important as etiologic factors. How far epidemic encephalitis is to blame is not yet clear. As for the symptoms, they are remarkably similar to those of the menopause, although every age and both sexes are represented. While prolonged rest in bed is probably the best treatment, at any rate early in the disease, the mistake is often made in prescribing more heroic measures, such as artificial fever, on the assumption that schizophrenia is to blame. Indeed, much of the importance attaching to the identification of these cases concerns their treatment; the patient needs rest and quiet surroundings, not the radical procedures now in vogue for schizophrenia or the studied neglect apt to be meted out to the subjects of more or less purely functional disturbances of the central nervous system.

What Is General Medical Practice?

There has been much discussion concerning the medical curriculum and the need for modifying it to meet the requirements of medical practice. From which end of the line are reforms to come? From the teachers? From the general practitioners who have grown old at their work and who, in retrospective mood, can tell both the teachers and their pupils what is needed most? With regard to this last question Dr. Hjalmar Sjövall, of Lund, has some pertinent facts to relate. He has undertaken a comprehensive study of the clinical notes and records of a colleague, a general practitioner in a town large enough to possess a hospital of its own. The records concern 1,000 consecutive cases seen in the course of some eight months of general practice. It should be noted that this figure refers to cases, not patients. In other words, one and the same patient with a fracture on one occasion and pneumonia on another would appear on the records as two cases. It was hoped that by means of an analysis of these records, of what was done for each case, to gain an insight into the duties and activities of a Swedish general practitioner at the present time.

What a mixture such a survey presents! In about 13 per cent of all his cases, the doctor found it necessary to send his patients to a hospital or to some specialist. A classification of the ailments brought to light the fact that as many as 200 were cases of cold in the head, sore throat, cough, hoarseness, or pain in the back or in the whole body, with or without fever. This figure could be brought up to 231 under the heading diseases of the respiratory system. As many as fifty cases were labeled neuroses and ten psychoses. Altogether there were 160 cases which could be classified as nervous disturbances. Again, there were as many as 132 cases of disease of the digestive tract. Dr. Sjövall's conclusion from this study is that one of the most important functions of the general practitioner is to sort out from a huge mass of trivial cases the very few requiring early diagnosis with the skilled treatment which alone can be expected to restore the patient to health. With highly skilled treatment in the hands of specialists, what is wanted of the general practitioner is above all diagnostic skill.

FINLAND

(From a Special Correspondent)

Feb. 15, 1940.

Medical Aspects of the War in Finland

In spite of the censorship it is now possible to glean and pass on a good deal of information concerning happenings of special interest to the medical profession. One reason why the medical services have worked with remarkable efficiency is the experience gained less than a score of years ago in Finland's war of liberation. It was, in a certain sense, a rehearsal for the present war. The fighting in 1918 was a mere skirmish compared with the pitched battles of today, but all the same the systems and standards created then have made their indelible impression on the medical services in the present war. It may not be generally known that Field Marshal Mannerheim is not only in supreme command of the army in spite of being well over 70 but is also the president of Finland's National Red Cross Society.

Foreign Medical Aid

Finland has been deeply stirred by the way in which aid of almost every kind has poured into the country from abroad. Acting on the principle that he gives twice who gives quickly, the American Red Cross cabled $16,000 during the first week of December to London for the purchase by the British Red Cross of medical supplies and anesthetics for Finland. These were immediately dispatched by air to the Finnish Red Cross, reaching Helsinki within a few hours. In their different ways, other organizations and countries have given material expression to their sympathy with the Finns. The Spanish Red Cross has sent funds for the purchase of medical supplies and for the equipment of an ambulance unit. The French Red Cross has sent motor ambulances with personnel, and Belgium, the Netherlands, Switzerland and Hungary have all made generous contributions to the common cause.

With the Foreign Ambulances

Being such close neighbors, it was natural that Sweden, Norway and Denmark should be among the first to send well equipped ambulance units to Finland. Such ambulance work is supposed to be a young man's job, so exacting are the calls on the energies of the persons concerned. But the heads of the Red Cross ambulance units from Sweden, Norway and Denmark are veterans—Prof. Gunnar Nyström and Professor Key from Sweden, Prof. Johan Holst from Norway and Professor Chievitz from Denmark. The work of these units will, however, be eased to a certain extent by a relay system, one team of surgeons and nurses being replaced by another after a certain interval. These foreign ambulance units take their orders from the Finnish high command on entering the country, and they are distributed and quartered as the Finnish authorities think fit. But these units are in matters of internal administration more or less autonomous. The larger units are usually given quarters in some important center with good road and rail communications, and from this main body the unit detaches a mobile section which establishes itself nearer the front, constituting itself an emergency hospital in a parsonage or some other comparatively spacious building.

The Swedish Ambulance Services

The first Swedish ambulance service reached Finland on the morning of December 22 by sea, Professor von Törne greeting it at Aabo on behalf of the Finnish Red Cross. It proceeded thence by rail to Helsinki and is now established "somewhere in Finland." The school building taken over by this unit is provided with 150 beds. While the first unit had a staff of only forty, the second unit has a staff of 127, including twenty-one doctors. This second unit will be able to deal with 250 bed cases at a time. Some of its vehicles are of a new type, designed by a civil engineer, Harald Ekman, who is in charge of the technical section of the Stockholm fire department. Both units have their own kitchens on wheels, and their equipment is such that they can still carry on even if food supplies from without run short and the electric current is cut off. Provision has also been made for lack of housing accommodation, the units having brought their own tents and huts equipped with their own heating apparatus and the outfit of a primitive operating room. Such independence of extraneous aid is most necessary in a war dominated in the air by bombers only too apt to be color-blind at the sight of a red cross, be its color ever so vivid, or its dimensions ever so large.

The Nature of the Casualties

So far this has been a war of high explosive and incendiary bombs, not a gas war. Doubtless meteorologic considerations rather than any tenderness of conscience in a humanitarian sense have relegated gas to the background, and for this immunity there is every reason to rejoice. But high explosives are bad enough, as shown by the report of Prof. Johan Holst, who has been at work near the front for several weeks and whose experience of war surgery in Finland's war of liberation and at the western front with the German forces in the war of 1914-1918 gives him a perspective in his observations of the present war. He reports that the wounds he has dealt with have on the whole been unusually severe, and he has found that just on this account the consumption of surgical dressings has been seven or eight times greater than in a civilian hospital of the same dimensions in time of peace. Another factor with a profound influence on the character of many of the casualties is the low temperature at this time of the year. Indeed, many of the casualties are exclusively due to prolonged exposure to severe cold. On the southern front the war during the first two months has been of a stationary character, with the Finns, at any rate, well entrenched. But on the eastern and northern fronts the opposing forces have surged backward and forward over wide areas sparsely populated—conditions profoundly altering the circumstances under which wounds are inflicted and treated.

A Tower of Babel

In time of peace, Finland is a bilingual country, Finnish being spoken by the masses, Swedish by the classes. The Danish and Norwegian doctors and nurses understand the Swedish spoken by the Finns and so are at an advantage compared with the ambulance units coming from other countries. The Swedish ambulance units have taken the precaution to include in their personnel people who speak both Finnish and Russian. But even so, the language difficulty is a serious problem.

SWITZERLAND

(From Our Regular Correspondent)

Feb. 2, 1940.

Antivivisection Defeated in Basel

In Basel a campaign against vivisection recently came to a close. The antivivisectionists had forced a vote by submitting the necessary 10,000 signatures required for the popular initiative. The campaign created great excitement in Switzerland and beyond its borders. The representative of the government of Basel, which has jurisdiction over educational and university affairs, pointed out that experimentation on animals was a scientific necessity, since the efficacy of new pharmaceutic remedies could not be tried out at once on human beings. The agitation of the antivivisectionists had a special significance for Basel with its highly developed pharmaceutic industry. The acceptance of the popular initiative would have necessitated removal of at least a part of this industry. The action of the council in rejecting it (ninety-seven to one) pointed the way to its defeat at the polls. Since the opponents of vivisection

had smuggled into their bill other measures, scientific experimentation such as injections would have been killed if it had been adopted.

The defeat of the popular initiative proposal had been preceded in Basel by an intensive medical campaign to educate the public and clarify popular misconceptions. The *Schweizerische medizinische Wochenschrift* had issued a special number in which vivisection was discussed from the points of view of physiology, pharmacology, hygiene, psychology and clinical and veterinary practice. The fight against the antivivisectionists was conducted with great skill and veered from the defensive to the offensive by exposing the weaknesses inherent in the arguments of the proponents and the inconsistencies in their attitude. The indispensability of the technic of scientific experimentation on animals was vigorously maintained.

It was pointed out that what the vivisectionists charged might have occurred formerly and might still be found sporadically but did not exist in Switzerland either at Swiss university institutes or in the laboratories of the pharmaceutic laboratories. Besides, since 1934 an agreement between the assembly of delegates of the German Swiss societies for the protection of animals and the Swiss society of medical biology had formulated principles of control. This had been concealed by the militant antivivisectionists. According to these principles, accepted by both organizations, animal experimentation could be performed only if absolutely necessary and was confined within narrow limits. Experiments were to be performed as much as possible on the lower animals first. Dogs were to be used only when other kinds of animals could not be substituted. Other mammals of the higher order were similarly protected. Narcosis was to be practiced on animals in the same way as in man. Besides, animal experiments could be carried out only in institutes under responsible scientific management and subject to state control. They were permitted for purposes of classroom instruction only if they could not adequately be replaced by other methods of demonstration. All institutes performing experiments on animals as well as the laboratories of the pharmaceutic industry, it was stressed, were governed by these principles. In consequence, "animal torture in the name of science" did not occur in Switzerland.

Hediger, of Berne, set forth, in the special issue referred to, that the opponents of vivisection had no right to pretend to be experts in matters of animal experimentation. They lacked the necessary knowledge of biology and animal psychology. Their opposition rested basically on egocentric ideas. All questions pertaining to the protection of animals and vivisection could be determined, he said, only on the basis of scientific biology. No doubt sentiment played a part in the attitude of those who opposed vivisection, rooted, perhaps, in a deep feeling of the need of animal companionship in the absence of normal human relationships.

The proposal of the antivivisectionists was rejected by a vote of 18,987 to 5,036; only half of the original petitioners voted in the affirmative, seemingly a proof of the value of medical campaigns for educating the public. The society for the protection of animals publicly opposed the popular initiative.

Obituary

Prof. Fritz de Quervain, for many years a surgeon in Berne, died at the age of 71 after a brief illness. He had studied in Berne under Theodore Kocher and with Kocher published an encyclopedia of surgery in 1902. He became director of the surgical division of the hospital in la Chaux-de-Fonds. In 1909 he was appointed professor of surgery at the University of Basel. In 1918 he succeeded Kocher at the University of Berne and as director of the surgical clinic and served there many years. Not long ago he retired. De Quervain specialized in the field of thyroid gland diseases but was conversant with nearly all fields of clinical surgery. His "Special Surgical Diagnosis" appeared in 1907 and was repeatedly revised and was translated into English, French, Italian, Spanish and Russian. De Quervain was highly esteemed, an excellent teacher, an experienced clinician and a man of charming personality.

ITALY

(From Our Regular Correspondent)

Jan. 15, 1940.

Congress of Radiology

The fourth Italian Congress of Radiology was held at Turin. Professor Meldolesi discussed the physical and biologic doses in measuring energy from ultraviolet sources. In heliotherapy and phototherapy the threshold of cutaneous erythema is the unit of biologic measure in actinology. In measuring ultraviolet energy by physical doses an agreement for the proper unit has not been reached. The ionometric method cannot be applied, the photochemical methods give uncertain results and the photoelectric methods, although sensitive, are inconvenient.

Professor Stoppani discussed the absorbed and transformed doses in irradiations of high potency. Increase of voltage results in percental increase of the dose, which, however, is not proportional to the increase of tension. Increase of tension, filtration and distance improves the condition of the physical factors. It makes it possible to apply radiation to lesions located in certain spots on which the application of radiation by the common technic is difficult.

Professor Castaldi spoke on the development of knowledge of mitogenic (Gurvich) rays. Studies show that tissues of living persons may give off ultraviolet radiations which originate in the tissues during reactions of oxidation and reduction, proteolysis, glycolysis, lipolysis and some other reactions. The wavelength of the radiations varies from 1,900 to 2,500 angstroms.

Professor Gallavresi studied the curve of mitosis in irradiated tumors. He found that shortly after the irradiating is begun typical karyokinesis prevails over atypical mitosis and that both typical and atypical mitosis diminish. The diminution is followed by a transient increase of atypical mitosis and then by a progressive lowering of karyokinesis, which entirely subside when the tumors are favorably modified by the treatment.

Professor Epifanio discussed the biologic and therapeutic action of neutrons on tumors. He found that hyaline degeneration and pyknosis caused by neutrons are more intense and of greater extension than those from gamma rays and that the neutronal treatment is followed by production of stromal reactions in abundance.

Deaths

Prof. Agenore Zeri, emeritus professor of medical special pathology at the Rome University, is dead. He was a professor in Italian universities for forty-two years.

Marriages

WALTER DOUGLAS HANKINS, Johnson City, Tenn., to Miss Helen Calvert Moyler of Franklin, Va., January 27.

ALGOT ASTROM, Harrodsburg, Ky., to Miss Rena May Wolcott, South Carrollton, in Lexington, January 18.

HOWARD M. SAPIRO, West Scarboro, Maine, to Miss Edythe R. Tavel of Worcester, Mass., Oct. 22, 1939.

CHARLES HATHORN WHEELER JR. to Miss Harriet Antoinette Winslow, both of New York, January 20.

THOMAS H. KUHNERT, Bristol, Tenn., to Miss Shirley Fisher of Franklin, Va., recently.

HUGH G. BOYLE, Wilkes-Barre, Pa., to Miss Marion Quigley of Luzerne, Dec. 28, 1939.

PAUL MITCHELL GLENN to Miss Hortense McClellan, both of Cleveland, January 20.

ELMER J. TEAGARDEN, Orlando, Fla., to Mrs. Mabel Barry of Apopka, January 17.

Deaths

Baxter L. Crawford ● Philadelphia; University College of Medicine, Richmond, Va., 1912; assistant professor of pathology at Jefferson Medical College of Philadelphia; member of the American Association of Pathologists and Bacteriologists and the American Society of Clinical Pathologists; served during the World War; on the staff of the Jefferson Hospital; aged 53; died, January 3, at the White Haven (Pa.) Sanatorium, of pulmonary tuberculosis.

David Daniel Swearingin ● Roswell, N. M.; Fort Worth (Texas) School of Medicine, Medical Department of Fort Worth University, 1901; member of the House of Delegates of the American Medical Association in 1919; on the staff of the St. Mary's Hospital; past president of the Chaves County Medical Society; aged 72; died, January 15, of coronary thrombosis.

Leroy Elijah Belding, St. Charles, Mo.; National University of Arts and Sciences Medical Department, St. Louis, 1912; member of the Missouri State Medical Association; formerly county coroner; aged 50; on the staff of St. Joseph's Hospital, where he died, January 30, of embolism following a fracture of the leg received in a fall.

John Francis Crosby, Seneca Falls, N. Y.; University of Vermont College of Medicine, Burlington, 1883; member of the Medical Society of the State of New York; past president of the Seneca County Medical Society; formerly member of the state legislature and mayor of Seneca Falls; aged 81; died, January 2, of chronic arthritis.

Charles Joseph Kane, Paterson, N. J.; Columbia University College of Physicians and Surgeons, New York, 1899; member of the Medical Society of New Jersey; fellow of the American College of Surgeons; aged 66; on the staff of St. Joseph's Hospital, where he died, January 16, of laryngeal edema, arteriosclerosis and chronic arthritis.

Larkin Hamilton Jennings, Columbia, S. C.; Medical College of the State of South Carolina, Charleston, 1900; past president and secretary of the Lee County Medical Society; at one time mayor of Bishopsville; for many years member of the board of trustees of his alma mater; aged 66; died, January 28, in the Providence Hospital.

Elmer Jefferson Bissell, Santa Barbara, Calif.; University of Michigan Homeopathic Medical School, Ann Arbor, 1883; fellow of the American College of Surgeons; member of the board of directors from 1926 to 1936 and president of the board from 1927 to 1931, Santa Barbara Cottage Hospital; aged 78; died, January 4.

W. Levell Draper, Niagara Falls, N. Y.; Hahnemann Medical College and Hospital, Chicago, 1890; University of Buffalo School of Medicine, 1899; formerly mayor; for many years county coroner; on the staff of the Mount St. Mary's Hospital; aged 74; died, January 26, of a fracture received in a fall, and arteriosclerosis.

Charles Herbert Borden, Summit, N. J.; Columbia University College of Physicians and Surgeons, New York, 1896; at one time health officer of Stamford, Conn.; aged 66; died, January 27, in the James M. Jackson Memorial Hospital, Miami, Fla., of injuries received when he was struck by an automobile.

James Allen Clevenger, Garrett, Ind.; University of Nashville (Tenn.) Medical Department, 1888; member of the Indiana State Medical Association; at one time mayor and secretary of the board of health; secretary of the school board; aged 79; died, January 28, in Fort Lauderdale, Fla., of coronary occlusion.

Arthur Ginnever, New York; New York Homeopathic Medical College and Hospital, New York, 1901; member of the Medical Society of the State of New York; aged 74; died, January 28, in the Northampton-Accomac Memorial Hospital, Nassawadox, Va., of injuries received in an automobile accident.

C. Fred Webner ● Newark, N. J.; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1889; on the staff of the Hospital of St. Barnabas and for Women and Children and the Newark Eye and Ear Infirmary; aged 71; died, January 28, of coronary occlusion.

Hugh Lawson Peters, Knoxville, Tenn.; Lincoln Memorial University Medical Department, Knoxville, 1911; member of the Tennessee State Medical Association; served during the World War; on the staffs of the Knoxville General and Fort Sanders Hospitals; aged 55; died, January 28, in St. Mary's Hospital.

Lowry W. Page ● Buckhannon, W. Va.; Eclectic Medical Institute, Cincinnati, 1909; past president of the Upshur County Medical Society; formerly county health officer and member of the county board of education; on the staff of St. Joseph's Hospital; aged 67; died, January 12, of carcinoma of the colon.

Leon Clemmer, Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1912; professor of obstetrics at his alma mater; fellow of the American College of Surgeons; served during the World War; obstetrician to the Hahnemann Hospital; aged 51; died, January 8, of chronic myocarditis.

David Sylvester Conley, Streator, Ill.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1883; member of the Illinois State Medical Society; at one time president of the city board of health; aged 79; died, January 24, of chronic interstitial nephritis.

P. Clinton Pumyea ● New York; Columbia University College of Physicians and Surgeons, New York, 1905; on the staff of the Welfare Hospital; formerly on the staff of the Central and Neurological Hospital; aged 59; died, January 18, of coronary thrombosis.

Robert Clayton Buck, St. Johns, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1899; served during the World War; formerly surgeon in the U. S. Public Health Service reserve; aged 66; died, January 26, of cirrhosis of the liver.

Albert Frederick Kaeser ● Highland, Ill.; University of Illinois College of Medicine, Chicago, 1901; served during the World War; at one time bank president; on the staff of St. Joseph's Hospital; aged 61; died, January 28, in the Barnes Hospital, St. Louis.

Samuel C. Trippe, Royal Oak, Md.; University of Maryland School of Medicine, Baltimore, 1875; member of the Medical and Chirurgical Faculty of Maryland; aged 90; died, January 24, in the Emergency Hospital, Easton, of a hip fracture received in a fall.

Arthur Franklin Stotts ● Galesburg, Ill.; Medico-Chirurgical College of Philadelphia, 1899; fellow of the American College of Surgeons; served during the World War; on the staff of the Galesburg Cottage Hospital; aged 64; died, January 9, of angina pectoris.

William Denney Hoffecker, New Canaan, Conn.; Hahnemann Medical College and Hospital of Philadelphia, 1908; aged 56; on the staff of the Norwalk (Conn.) General Hospital, where he died, January 1, of pulmonary embolism following prostatectomy.

Hugh Arthur Barbee ● Point Pleasant, W. Va.; University of Pennsylvania Department of Medicine, Philadelphia, 1895; past president of the Mason County Medical Society; aged 65; died, January 29, in the Holzer Hospital, Gallipolis, of meningitis.

Arthur Rhodes Bradbury, Grand Island, N. Y.; University of Buffalo School of Medicine, 1892; member of the Medical Society of the State of New York; for many years health officer; aged 70; died, January 12, of injuries received in an automobile accident.

Roy Andrew Dodge ● Omaha; Medical Department of Omaha University, 1901; at one time secretary of the Omaha-Douglas County Medical Society; on the staff of the Douglas County Hospital; aged 62; died, January 19, of cirrhosis of the liver.

Edmund Charles Boddy, Oil City, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1897; served during the World War; resident physician to the Grand View Institution; aged 65; died, January 12, of heart disease.

Charles Rasmi Christenson ● Starbuck, Minn.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1896; on the staff of the Minnewaska Hospital; aged 72; died, January 14, in the Morris (Minn.) Hospital of gastric ulcer.

Edward Louis Burns, Newark, N. J.; Harvard Medical School, Boston, 1890; member of the Medical Society of New Jersey; aged 74; on the staff of St. James Hospital, where he died, January 29, of arteriosclerosis and right hemiplegia.

Robert Bruce Armstrong ● Charlevoix, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1894; at one time mayor; on the staff of the Charlevoix Hospital; aged 73; died, January 30, of coronary occlusion.

James Moreau Brown ● Jersey City, N. J.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1909; aged 62; died, January 30, in the Medical Center of Jersey City of lobar pneumonia.

John Leroy Fisher, Owego, N. Y; Jefferson Medical College of Philadelphia, 1894; member of the Rhode Island Medical Society; served during the Spanish-American and World wars; aged 76; died, January 27, of chronic myocarditis.

Ernest Anthony Everett, O'Fallon, Ill.; St. Louis University School of Medicine, 1906; member of the Illinois State Medical Society; aged 56; died, January 19, in St. Elizabeth's Hospital, Belleville, of coronary thrombosis.

Robert Dewar MacKenzie ● Detroit; University of Toronto Faculty of Medicine, Toronto, Ont., Canada, 1914; served during the World War; aged 48; died, January 28, of injuries received in an automobile accident.

Rupert Clyde Priest, Rusk, Texas; Southwestern University Medical College, Dallas, 1910; member of the State Medical Association of Texas; aged 59; died, January 23, in a hospital at Jacksonville of cardiorenal disease.

John Turner Kendall, Argos, Ind.; Hospital Medical College of Evansville, Ind., 1885; Rush Medical College, Chicago, 1886; aged 75; died, January 30, in the Parkview Hospital, Plymouth, of intestinal obstruction.

Frederick William Stoermann, Kansas City, Mo.; Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin, Prussia, Germany, 1894; aged 75; died, January 14, in the Research Hospital of pulmonary infarction.

George Francis McIntire ● West Barrington, R. I.; Harvard Medical School, Boston, 1908; member of the Massachusetts Medical Society; aged 68; died, January 9, in the Jane Brown Memorial Hospital, Providence.

Guy Ransom Fromm ● Cincinnati; Eclectic Medical College, Cincinnati, 1916; on the staff of the Booth Memorial Hospital, Covington, Ky., and the Deaconess Hospital; aged 54; died, January 31, of carcinoma.

Hiram Ferdinand Datesman, Passaic, N. J.; New York Homeopathic Medical College and Hospital, New York, 1899; for many years on the staff of St. Mary's Hospital; aged 88; died, January 31, of senility.

Archie Kelly Higgs, Portland, Ore.; Arkansas Industrial University Medical Department, Little Rock, 1891; state senator; served during the World War; aged 68; died, January 19, of coronary occlusion.

George Merriman Burrall, Los Angeles; University of California Medical Department, San Francisco, 1923; member of the California Medical Association; aged 42; died, January 14, of cirrhosis of the liver.

John Anderson, Cleveland; Niagara University Medical Department, Cleveland, 1895; on the staff of the Polyclinic Hospital; aged 78; died, January 23, of arteriosclerotic heart disease and bronchopneumonia.

Adolph Widder, Cleveland; Magyar Királyi Pázmány Petrus Tudományegyetem Orvosi Fakultasa, Budapest, Hungary, 1896; served during the World War; aged 65; died, January 20, of coronary thrombosis.

Robert B. Campbell, Franklin, Neb.; Keokuk (Iowa) Medical College, 1894; member of the Nebraska State Medical Association; aged 69; died, January 22, of arthritis, endocarditis and arteriosclerosis.

Allton Lawrence Sherman ● Orange, N. J.; Yale University School of Medicine, New Haven, Conn., 1914; on the staff of St. Mary's Hospital; aged 50; died, January 9, of coronary thrombosis.

George Alvin Holland ● Newark, N. J.; University of Vermont College of Medicine, Burlington, 1930; on the staff of the Beth Israel Hospital; aged 39; died, January 4, of acute coronary occlusion.

Henry B. Downs, Danville, Ill.; St. Louis College of Physicians and Surgeons, 1898; formerly a minister and lawyer; aged 80; died, January 21, in the Lake View Hospital of chronic myocarditis.

William Nathaniel Hankins, Shreveport, La.; University of Tennessee College of Medicine, Memphis, 1915; served during the World War; aged 49; died, January 30, of ventricular fibrillation.

Chauncey C. Hacker, Elizabethton, Tenn.; College of Physicians and Surgeons, Baltimore, 1907; formerly mayor; aged 63; died, January 14, of coronary thrombosis and arteriosclerosis.

Lee M. Clarke, Pelahatchee, Miss.; University of Tennessee Medical Department, Nashville, 1891; aged 74; died, January 8, of multiple sclerosis and bronchopneumonia.

Harriet Agnes Williams Baker, Pittsfield, Mass.; Boston University School of Medicine, 1903; aged 61; died, January 7, in Boston, of carcinoma of the stomach.

Henry Charles Kehoe, Fort Myers, Fla.; Pulte Medical College, Cincinnati, 1885; aged 82; died, January 1, in Shelbyville, Ky., of cerebral hemorrhage.

Jonathan Howard McCaleb, New Orleans; College of Physicians and Surgeons, Baltimore, 1881; aged 84; died, January 7, in the Touro Infirmary.

Francis Eugene Prestley, Mexico, D. F., Mexico; Rush Medical College, Chicago, 1893; aged 68; died, January 23, of pneumonia following an operation.

Charles Raymond Farnham, Milwaukee; Milwaukee Medical College, 1904; aged 60; died, Dec. 9, 1939, of coronary sclerosis and chronic myocarditis.

Clara C. Sterling, Chicago; Hering Medical College, Chicago, 1907; aged 71; died, January 4, in the Middle Georgia Hospital, Macon, of myocarditis.

John Ellsworth Holland, Mount Pleasant, Iowa; Bellevue Hospital Medical College, New York, 1890; aged 77; died in December 1939 of heart disease.

Benjamin Harvey Hill Ward, Atlanta, Ga.; Atlanta School of Medicine, 1908; aged 55; died, January 22, of heart disease and chronic nephritis.

Mert Hawkins Starnes, Lubbock, Texas; University of Texas School of Medicine, Galveston, 1916; aged 50; died, January 20, of pneumonia.

Frank D. Kelly, Olanta, S. C.; Medical College of the State of South Carolina, Charleston, 1911; aged 52; died, January 7, in a hospital at Florence.

Walter W. Bruce, Portland, Ore.; Willamette University Medical Department, Salem, 1902; aged 60; died, January 9, of coronary thrombosis.

Donald Stevens Adams ● Los Angeles, Calif.; Harvard Medical School, Boston, 1933; aged 34; died, Dec. 4, 1939, of chronic myocarditis.

Charles T. Black, El Dorado, Ark.; Memphis (Tenn.) Hospital Medical College, 1906; aged 57; died, January 26, of chronic myocarditis.

Karl Campbell Prichard ● Huntington, W. Va.; Jefferson Medical College of Philadelphia, 1906; aged 60; died, January 5, of pneumonia.

Newton Cook, Sandy Creek, N. Y.; University of the City of New York Medical Department, 1879; aged 85; died, January 7, of pneumonia.

William Albion Dulaney, Wayne City, Ill.; St. Louis University School of Medicine, 1905; aged 66; died, January 21, of myocarditis.

Milo A. Schultz ● Memphis, Tenn.; Memphis Hospital Medical College, 1902; aged 63; died, January 18, of chronic myocarditis.

James B. Dunham, Wenona, Ill.; Hahnemann Medical College and Hospital, Chicago, 1881; aged 85; died, January 10, of myocarditis.

Guy Wimberly ● Ringgold, La.; Memphis (Tenn.) Hospital Medical College, 1908; aged 57; died, January 16, of chronic myocarditis.

Oscar Clarence McCara, Warrior, Ala.; Birmingham Medical College, 1907; aged 62; died, January 15, of coronary thrombosis.

Mark Alva Nye, Omaha; University of Nebraska College of Medicine, Omaha, 1904; aged 67; died, January 21, of coronary occlusion.

Charles E. Howard, Benton, Ky.; University of Louisville Medical Department, 1892; aged 74; died, January 23, of myocarditis.

Charles R. Sheckler, Brokensword, Ohio; Columbus Medical College, 1878; aged 83; died, January 7, of arteriosclerosis.

Clarence H. Adye, Newtonville, Ind.; Louisville (Ky.) Medical College, 1894; aged 69; died, January 13, of myocarditis.

John Pedden, Grand Rapids, Mich.; Detroit College of Medicine, 1900; aged 67; died, January 18, of bronchopneumonia.

Franklin J. Patchin, El Paso, Texas; Columbus Medical College, 1881; aged 87; died, January 1, of chronic nephrosis.

Frank Oliver Wood, Hope, Ark. (licensed in Arkansas in 1903); aged 77; died, January 12, of cardiorenal disease.

William P. Leonard ● Talbotton, Ga.; Atlanta College of Physicians and Surgeons, 1900; aged 63; died, January 20.

Eli Trimble, Seymour, Mo.; Louisville (Ky.) Medical College, 1896; aged 73; died, January 5, of diabetes mellitus.

William A. Wilson, Gahanna, Ohio; Columbus Medical College, 1878; aged 85; died, January 22, of carcinoma.

Mike Hodge Pearce, Elko, Ga.; Atlanta Medical College, 1914; aged 56; died, January 20, in Hawkinsville.

Correspondence

COMPULSORY SICKNESS INSURANCE

To the Editor:—The industrial picture in Britain has lately been holding my attention because it is the nation whose experience with compulsory health insurance that has been presented as most worthy of being copied.

Prior to the rearmament activity, Britain's unemployed were listed as approximating 2,000,000. In spite of the war's effect on employment it is said to have been 100,000 more in December 1939 than in the preceding September.

Up to the time of the initiation of rearmament the recipients of the dole were estimated to be in the neighborhood of from 16 to 18 million. How are the figures relative to the unemployed to be correlated with those on the dole?

Half of Britain's working population receives less than £250 ($1,250) annually. These and their dependents—again, a matter of 18 million—are the beneficiaries of her National Health Insurance. What relation have their numbers to the unemployed or to those on the dole? If the figures for those on the dole do not represent the same fraction of the population as the employed group with incomes less than £250, how, then, are their health needs met? Are they the "charity" of the profession or, if not, in what manner do they provide or is compensation provided for the physician?

Physicians in Britain receive 9 shillings ($2.25) per capita annually. Yet it is proposed in California, among one fifth as many beneficiaries, for one half as many physicians to give the latter more than two times as much as is allotted to their colleagues in Britain under an identical taxation scheme.

JOHN F. QUINLAN, M.D., San Francisco.

"GERIATRICS"

To the Editor:—Permit me to correct an error in Dr. Tuohy's article on geriatrics in your issue of January 20. He said "Masters introduced it (the word 'geriatrics') in a thesis in 1914." I coined the word "geriatrics" and suggested it to cover a special branch of medicine dealing with old age, in a paper which appeared in the *New York Medical Journal* Aug. 21, 1909, lectured on Geriatrics in Medical Schools in Chicago, New York and Boston from 1909 to 1916, organized the New York Geriatric Society in 1912, and Blakiston published the first edition of my textbook "Geriatrics, Diseases of Old Age and Their Treatment" in 1914. Official duties prevented the continuance of my work in geriatrics. Now, retired and well along in years (76), I still take an active interest in the subject and hope to see it become a major branch of medicine.

I. L. NASCHER, M.D., Port Richmond, N. Y.

TREATMENT OF WAR FRACTURES BY THE CLOSED METHOD

To the Editor:—In THE JOURNAL, February 10, in the London letter there appears under the caption "Treatment of War Fractures by the Closed Method" a discussion of a report by Dr. Trueta before the Royal Society of Medicine. In this report is described a method of treating compound fractures which one would gather is supposed to be something new. According to the London letter, in the discussion "the president of the section of surgery, Mr. Cope, described it as momentous and bidding fair to revolutionize a most difficult war problem."

The mechanical disinfection-closed plaster cast treatment of compound injuries has been well known and widely used in this country since its description by H. Winnett Orr, of Lincoln, Neb., and since the publication of Orr's book (Osteomyelitis and Compound Fractures, St. Louis, C. V. Mosby Company, 1929) it has been adequately described in a number of places (Bickham, W. S., and Smyth, C. M., Jr.: Operative Surgery, Philadelphia, W. B. Saunders Company, 1933, vol. 7; Warbasse, J. P., and Smyth, C. M., Jr.: Surgical Treatment, Philadelphia, W. B. Saunders Company, 1937, and in a number of papers by Damon B. Pfeiffer and myself). It would seem, therefore, that the so-called revolutionizing of this problem has been somewhat delayed in other parts of the world. Is it possible that this is another illustration of that well known British frugality in giving credit to anything originating in America?

CALVIN M. SMYTH JR., M.D., Philadelphia.

"SAFE TRANSPORT FOR THE UNCONSCIOUS PATIENT"

To the Editor:—I read Dr. Flagg's communication on "Safe Transport for the Unconscious Patient" in THE JOURNAL, February 17, with great interest because only last week I encountered a very similar case.

At 5 p. m. on February 14 I was called to see a married woman aged 28 who was sinking rapidly. Forty hours previously she presented symptoms and signs plus spinal fluid changes of a subarachnoid hemorrhage, and since that time she had been semiconscious, rousing at intervals. When I arrived at the home her husband was applying artificial respiration, there being no voluntary effort; her radial pulse was barely felt at 120 and her heart sounds were feeble. A lumbar puncture was immediately done and circulatory stimulants were given. An ambulance was called and arrangements were made to place the patient in a Drinker respirator in a Syracuse hospital. The ambulance arrived at 8:15 and the patient was placed in it and, escorted by state police, carried a distance of 35 miles through a blinding snowstorm to the hospital, which was reached at 10:45. All this time artificial respiration was being maintained by four persons taking turns in the ambulance. The patient was immediately placed in the respirator after being placed on a hospital stretcher and taken upstairs in an elevator; she survived for three hours in it. Autopsy confirmed the diagnosis, there being a rent in an aneurysm of the right middle cerebral artery on the ventral surface of the brain.

This case strengthens Dr. Flagg's statement that "the feasibility of transporting safely the patient who has ceased to breathe" really exists.

MARVIN BROWN, M.D., Cleveland, N. Y.

HYPOPARATHYROIDISM

To the Editor:—A scientific fact is unaltered by the question of its parenthood, but for the sake of historical accuracy we wish to call your attention to what appears to us to be an accidental oversight by two of your contributors. Drs. C. L. Spingarn and S. H. Geist in THE JOURNAL of Dec. 30, 1939, gave an able discussion of the effect of hyperparathyroidism in the mother on the developing embryo. They state that Bakwin (Tetany in Newborn Infants, *J. Pediat.* **16**:1 [Jan.] 1939) called attention to the existence of hypoparathyroidism in the newborn. Permit us to say that three years before the appearance of Bakwin's publication we established by means of chemical and metabolic studies the existence of hypoparathyroidism in a 7 weeks old infant (Infantile Tetany, *Am. J. Dis. Child.* **51**:816 [April] 1936). We wish to repeat that, while the question of priority may not be important, the added evidence which we presented to favor the thesis of Drs. Spingarn and Geist is of sufficient importance to merit your attention.

JOSEPH B. PINCUS, M.D.
ISAAC F. GITTLEMAN, M.D.
Brooklyn.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

HODGKIN'S DISEASE AND SULFANILAMIDE

To the Editor:—I should like to ask several questions relevant to the position, if any, of sulfanilamide in the theory and therapeusis of Hodgkin's disease. I am prompted to make this inquiry by the unexpected results of the more or less unintentional use of the compound in an early case. About eighteen months ago I was consulted by a man aged 25 who gave the following history: Three months previously he had undergone the extraction of six badly infected teeth at one sitting. A few weeks later he noticed a tender lump beneath the angle of his jaw. Other lumps appeared until the cervical chain and gradually the axillary glands were enlarged, slightly painful and moderately tender to pressure. When I saw the patient, the involvement had become bilateral. The blood picture showed a moderate anemia and a slight leukocytosis (10,000), with no significant abnormalities except the presence of 4 per cent eosinophils. I removed a gland for pathologic study and, pending the arrival of the report, administered sulfanilamide in doses of from 3 to 4 Gm. daily. This was done on the concededly slim chance that, in the presence of pain and tenderness and the absence of pruritus, the adenopathy might be related to the oral sepsis described. The results were startling: the pain and tenderness, which had been present without remission since the onset, disappeared in forty-eight hours, and in the course of a week all the glands had become appreciably smaller and softer, a few becoming actually impalpable. The pathologic report, which became available at this time, described eosinophils, Dorothy Reed cells, polymorphonuclears and fibrosis, corresponding to what Jackson has since labeled the "granuloma type." The diagnosis, made by a qualified pathologist, was subsequently confirmed. Sulfanilamide therapy was discontinued immediately and the patient referred for roentgen therapy. The response to x-rays was good, and two subsequent recurrences have also responded well to irradiation. My questions are the following: Are the remissions in Hodgkin's disease frequently so dramatic that the one described may have been a coincidence, unrelated to the treatment? In the matter of the etiology of Hodgkin's disease have the theories of an infectious origin and a neoplastic response to infection gained any ground within recent years? In any case is there sufficient evidence in these directions to justify the use of sulfanilamide and related compounds, at least as an adjunct therapy, or perhaps in the intervals between courses of irradiation? If so, which of the several compounds would appear to be most suitable?

P. B. Candela, M.D., Brooklyn.

ANSWER.—The best general answer to this question is to quote from a statement made by Dr. E. B. Krumbhaar in September 1939: "Thus we see that the problems of Hodgkin's disease of the past generation remain the problems of today. We still do not know whether it is an infectious granuloma or a neoplasm, and therefore we are ignorant of its pathogenesis (its portals of entry, if any, and how it develops); we have no specific laboratory diagnostic test other than the biopsy examination; we have no means of predicting how long a given case will survive; and we have no specific form of treatment."

Remission without treatment in Hodgkin's disease is exceedingly uncommon, although progress is sometime slow. The one false note in this account is the painful and tender glands. The glands in Hodgkin's disease are usually painless and produce discomfort only by pressure on surrounding structures. No authentic report of the beneficent effect of sulfanilamide in this condition has appeared in the literature.

VISUAL SCREENING TESTS AND VISION CHARTS

To the Editor:—As a member of the board of education and president of the board of health, I have been approached by the school nurses to settle a controversy. At the National Convention of Optometrists the teachers were invited in to hear a tirade condemning the use of Snellen charts for the determination of visual acuity of school children and demanding that they use the Betts telebinocular machine. The February issue of *Hygeia* answers a question on the subject and says that a committee of the American Medical Association would soon have a report to render on the subject of the Betts telebinocular machine. Can you enlighten me by such a report? Would the routine duties of a school nurse require her to use this machine to check children's eyes on demand from the teaching organization? Is a school nurse supposed to make any diagnostic report or decision relative to a pupil's eyes? Is a teaching organization supposed to propagandize the use or sale of any optical equipment? Any help that you can give me on this subject will be doubly appreciated, in view of the fact that I am an ophthalmologist and still use Snellen charts in my own office.

M. P. Andrews, M.D., Manitowoc, Wis.

ANSWER.—The report referred to was made by the Council on Physical Therapy and was published in THE JOURNAL Sept. 2, 1939, page 937. The report announced that the Betts charts, which are used on the telebinocular, a form of stereoscope, were not acceptable to the Council. This decision was made because of the experience of members of the committee that examinations with the Betts charts greatly overestimate the number of children in whom eye defects are a cause of reading disability. This opinion was supported by an investigation by Oak and Sloane, reported in the *Archives of Ophthalmology* for November 1939. The latter found that only three of 100 children were able to pass the Betts tests when repeated at two successive examinations, following the technic described in the manual. When the charts were used by another method of scoring suggested by a Keystone expert, the number of children checked as defective was still much greater than when the same children were tested by a regular ophthalmologic examination. It is true that the Snellen test reports defects only in central vision and neglects several other factors.

A series of simple tests has been arranged by Dr. Walter Lancaster and is being tried in the Boston schools and some other schools at present. These tests appear to offer advantages over both the Betts charts and the Snellen charts. The tests are made so that they can be carried out by a school nurse after a short training in their use. In most schools the school nurse is not required to make any diagnostic report but only to report that the child is or is not in need of further examination of the eyes by a specialist.

If a teaching organization demanded that a school nurse use a Betts apparatus to make a visual screening survey of the children under her charge, the nurse should refer the matter to a competent ophthalmologist, who should make it his business to set the teaching organization right about a question on which the organization lacks technical knowledge.

A school nurse is supposed to report such visual defects as her limited knowledge permits her to detect. Diagnoses and therapeutic measures lie entirely beyond the scope of her duties or capabilities. Certainly no teaching organization should propagandize the use or sale of optical equipment.

SULFANILAMIDE PROPHYLACTICALLY FOR MENINGOCOCCIC MENINGITIS

To the Editor:—Kindly advise the dosage of sulfanilamide which might be given prophylactically to children and adults exposed to epidemic cerebrospinal meningitis.

F. J. Blasingame, M.D., Wharton, Texas.

ANSWER.—Little information is available concerning the prophylactic use of sulfanilamide in infections which are susceptible to therapy with this drug. There is no published information available regarding the efficacy of the drug in the prevention of meningococcic meningitis. Unpublished reports seem to indicate that sulfanilamide therapy will not eradicate meningococci from the throats of meningococcus carriers. It is possible therefore that the prophylactic use of the drug might not be of much value in preventing meningococcic infection. However, one cannot go entirely on such data. If the drug is to be used prophylactically against meningococcic infections such use would have to be considered entirely experimental and hence the dosage required would have to be determined by the method of trial and error.

STERILE SOLUTION OF SULFANILAMIDE—SULFANILAMIDE IN ABDOMEN

To the Editor:—How can sulfanilamide be safely used in the infected abdomen, since the chemical cannot be autoclaved?

M.D., Virginia.

ANSWER.—Sulfanilamide can be autoclaved at 15 pounds pressure for five minutes without causing decomposition of the drug if it is prepared in a 1 per cent physiologic solution of sodium chloride. However, this type of sterilization is not frequently used in preparing solutions of the drug. Generally, in preparing solutions of sulfanilamide for parenteral use a measured amount of sterile physiologic solution of sodium chloride, sixth molar sodium lactate in saline solution or lactate-Ringer (Hartmann's) solution is brought to a boil and then the flame is cut off and enough crystalline sulfanilamide is added to make a 1 per cent solution. With gentle shaking the drug readily goes into solution. The solution is cooled to 37 C. and is then ready for use. Fresh solutions of the drug should be prepared daily. These solutions should be kept at room temperature. At icebox temperatures the sulfanilamide crystallizes out of solution. In these forms it could probably be used in an infected abdomen. However, experience has shown that, in general, the oral administration of the drug or its parenteral use by the subcutaneous route is preferable to using a solution of the drug as an irrigating fluid in cases of peritonitis. Ravdin and his associates (*Ann. Surgery* **111**:53 [Jan.] 1940) have recently discussed

favorable results which they have obtained by the oral use of sulfanilamide in cases of acute appendicitis. In a certain proportion of these cases a localized or generalized peritonitis was present.

DIAGNOSIS AND TREATMENT OF TULAREMIA

To the Editor:—Please discuss fully the cutaneous tests for tularemia, both the test with antigen made from a diluted suspension of Bacterium tularense and the test with the diluted antitularemic serum (as described in the circular which comes with Sharp & Dohme's antitularemic serum). Please discuss also the time of reading the tests, their degree of accuracy (both positive and negative reactions), and how soon after the onset of the disease they are positive. Would an agglutination reaction of patient's serum of 1:20 three years after the disease be considered evidence of tularemia in the past? What is the status at the present time of both antitularemic serum and sulfanilamide? It seems that many physicians in this vicinity are using sulfanilamide in the treatment of tularemia but I can find only one reference to its use in the Journal, and this is a report of only one case. In an abstract of an article by Elkus from the *New Orleans Medical and Surgical Journal* of December 1938 appearing in The Journal, Jan. 21, 1939, page 274, it is stated that ferrous iodide is a specific in tularemia. Please elaborate.

M.D., Mo.

ANSWER.—Cutaneous tests with the special Bacterium tularense antigen developed by Foshay, of the University of Cincinnati, should be read forty-eight hours after injections are made. The special antigen is safer than a highly diluted suspension made from formaldehyde-killed agglutinating antigen, since the latter is capable of provoking occasional serious focal and constitutional reactions as well as necrosing local reactions. Falsely positive reactions have not yet been recorded with Foshay's skin test antigen, and the test appears to be highly specific.

Cutaneous tests with diluted antitularemia serum must be controlled each time with equally diluted, strictly normal serum from the same animal species. Otherwise it is not possible to differentiate the bacterial-specific reaction from the serum protein-specific response. This reaction should be read immediately and at five minute intervals up to the twentieth minute. A positive reaction consists of enlargement of the central wheal to two or two and a half times its original diameter, with a surrounding areola of erythema usually at least 1 inch (2.5 cm.) in diameter, at the site of the immune serum injection, with no reaction at all at the site of the normal serum injection. Falsely positive reactions have not been recorded, and the specificity of this test appears to equal that of the cutaneous test with the bacterial antigen.

Both of these tests have given positive reactions when applied as early as eight hours after the initial chill. However, in about 7 per cent of 300 proved tularemic infections these tests were negative to initial trials in the first six days of illness (falsely negative reactions). Repetition of the tests at forty-eight hour intervals gave positive responses before serum agglutinins appeared in all persons except one. Reliability is much greater at later stages of illness.

Although the titer of 1:20 is lower than that usually found three years after illness, provided the test was performed properly and that brucellosis is not present, it may be considered that an agglutination titer of 1:20 provides evidence of previous tularemic infection.

Serum therapy has been shown to shorten morbidity and to diminish mortality to significant degrees. No accurate data are available on the use of sulfanilamide in the treatment of tularemia. Unpublished information on its use in thirty cases indicates little or no favorable action of the drug.

Since no evidence was presented to indicate that tularemic infection existed in any case mentioned in the article referred to, it is not possible from the information presented to estimate what effect syrup of ferrous iodide might have in this infection. Whenever various iodides have been administered to patients with proved tularemic infections, all students of this disease are in general agreement that there occurred no significant modifications from the natural course of the illness.

ULTRAVIOLET LAMPS

To the Editor:—Are ultraviolet lamps to be recommended for use at home for their general tonic and "sunburning" effect?

W. S. Dietrich, M.D., New Cumberland, Pa.

ANSWER.—If the object is to tan the skin and in this way obtain the sensations and perhaps the illusion that go with increased pigmentation of the skin, ultraviolet lamps can be recommended. Obtaining in this manner a general tonic effect on the body is a different matter. For many years it has been the attitude of the Council on Physical Therapy of the American Medical Association that ultraviolet rays generated artificially by a lamp of any kind cannot be depended on to increase the tone of tissues or of physiologic processes in general.

Exposure of the bare body to natural sunlight, especially when this is done in properly graduated periods of exposure, is often followed by an improvement in the tone and physiologic function of the skin, and indirectly of the body. However, it has never been conclusively demonstrated that this is a specific effect of the ultraviolet rays produced by the sun. There is evidence to indicate that the mere contact of the skin with the open air plays a part in these effects and it is not clear, therefore, how much of these effects are due to contact with open air and how much may be attributed to the direct action of the ultraviolet rays from sunlight.

Ultraviolet rays produced artificially by various kinds of lamps only remotely simulate the spectrum of sunlight. Such a beam of ultraviolet rays is made up chiefly of certain lines of the spectrum where the intensity is high, but at other points in the spectrum the intensity may be low or absent. It is for this and the other reasons mentioned that the Council has not allowed manufacturers of accepted ultraviolet generators to advertise that exposure to rays generated by their lamps increases the tone of tissues or of other body structures.

FLUORIDES AND MOTTLED ENAMEL

To the Editor:—In the particular locality where I am practicing the drinking water contains fluorine, 3 parts per million; this amount is definitely enough to mottle the teeth in children who drink it. The question arises, and I have been asked many times: 1. Is it necessary for a pregnant or nursing mother, in order to prevent mottling of her child's teeth, to seek water with a lesser concentration of fluorine? 2. Is it possible that fluorine ingested at that time could mottle the teeth later? 3. Would it be possible that enough fluorine could be obtained from pasteurized milk of local cows to cause mottling?

M.D., Arizona.

ANSWER.—1. It is unlikely that the use by a mother during the period of gestation and lactation of a domestic water containing 3 parts per million of fluorides will result in the mottling of her child's teeth. This statement is based on epidemiologic evidence. In endemic areas where the fluoride concentration is considerably higher than the quantity referred to, only sporadic instances of mottled enamel are observed in the deciduous teeth. A considerable portion of the calcification of the deciduous teeth occurs in utero; probably this explains their relative freedom from mottled enamel.

2. It should be borne in mind, however, that certain of the permanent teeth begin calcification of the crowns at birth or shortly thereafter. Water containing 3 parts per million of fluorides would produce mottled enamel in a high percentage of those children using it for drinking and cooking during the calcification period. For instance, the calcification of the crowns of the permanent central incisors begins between the third and fourth months of life and is completed between the fourth and fifth years. It is during this period that the toxic effects of fluorides with respect to mottled enamel are operative even though these teeth do not erupt until several years later. For the protection of all permanent teeth, third molars excepted, the fluoride content of the water used for both drinking and cooking during the first eight years of life should not exceed 1 part per million.

3. Phillips, Hart and Bohstedt (*J. Biol. Chem.* **105**:123 [April] 1934) state that no difference was observed in the biologic reaction of rats fed normal milk as compared with those fed milk from cows receiving an added source of fluorine. They further note that the fluorine content of milk is comparatively difficult to influence by dietary means.

IRON IN MOLASSES, TABLE SYRUPS AND SUGARS

To the Editor:—Recently I heard over the radio a food "expert" speak about molasses containing a large amount of iron. I thought molasses was a sugar just like corn syrup. How much iron is in molasses, honey, karo syrup and dextrimaltose? Has molasses been used in infant feeding formulas? If so, with what results?

M.D., New York.

ANSWER.—Molasses as formerly manufactured was the mother liquor remaining after the removal of one crop of sugar crystals from the boiled down juice of the sugar cane. Because the removal of cane sugar by one crystallization is far from complete, the molasses thus obtained was rich in sucrose. It also contained the majority of the other constituents of the cane juice, including the ash, in relatively high proportion. It is now customary to remove the sucrose more nearly completely by a series of crystallizations. Types of molasses derived from successive crystallizations of sugar are designated as first, second and third molasses; they differ from one another in sucrose and ash content, the first molasses containing more

sucrose and less ash than the second or third. The iron content of the molasses products of one manufacturer has been determined by Harris, Mosher and Bunker (The Nutritional Availability of Iron in Molasses, *Am. J. Dig. Dis.* **6**:459 [Sept.] 1939), who found a content of 3.2, 6.0 and 11.3 mg. of iron per hundred grams respectively for first, second and third molasses. Other investigators have reported an average iron content of 7.3 mg. per hundred grams, or 0.0073 per cent. The iron of molasses is reported to be in available form, although that of the third molasses appears less well utilized by rats than that of the first and second types. Molasses may be considered a rich and inexpensive source of iron in the diets of older children and adults. No reports of the use of this product in infant feeding have appeared in the scientific literature.

Most table syrups used as modifiers of milk in infant feeding are prepared from corn syrup and either sugar syrup or refiners' syrup. The corn syrup ingredient is prepared by hydrolyzing corn starch in an acid solution under steam pressure until a definite percentage of dextrose is formed. The solution is then neutralized with sodium carbonate and filtered. The filtrate is concentrated in vacuum to the desired density. Refiners' syrup is the mother liquor or residual product obtained in the process of refining substances which distinguish the brown or yellow raw cane sugar from the white refined cane sugar. According to federal definition, refiners' syrup contains not more than 25 per cent water and not more than 8 per cent ash. Sugar syrup is the product made by dissolving cane or beet to the consistency of the syrup. It contains not more than 35 per cent water. In general, the light table syrups containing corn syrup consist of a mixture of corn syrup and sugar syrup, and the dark or "golden" syrup consists of corn syrup flavored with refiners' syrup. According to Rose (Laboratory Handbook for Dietetics, ed. 4, New York, Macmillan Company, 1937), dark corn syrup contains an average of 12.8 mg. of iron per hundred grams while the light corn syrup contains about 1.4 mg.

Schuette and Remy (*J. Am. Chem. Soc.* **54**:2909, 1932) have studied the iron content of honey and report that light honeys contain an average of 0.24 mg. of iron per hundred grams while dark honeys contain an average of 0.94 mg. A maximum value of 3.5 mg. was reported for dark honeys. No information concerning the iron content of dextrimaltose is available, but according to the information provided by the manufacturer and published in the book "Accepted Foods," Mead's Dextri-Maltose with Added Extract of Wheat Embryo and Yeast contains approximately 8 mg. of iron per hundred grams. Corn syrup and dextrimaltose are widely used in infant feeding, and the successful use of honey as a carbohydrate modifier for milk in infant feeding has been reported by Schlutz and Knott (*J. Pediat.* **13**:465 (Oct.) 1938).

NO DANGER FROM INHALING HAIR IN DRY SHAVING

To the Editor:—Is there any possibility of damage to the lungs from inhalation of the small particles of hair cut off by dry electric shaving?

M.D., Ohio.

ANSWER.—The diameter of human hair is too great to permit successful inhalation. Investigation of the possibilities has shown that one cannot cut segments short enough to be inhaled. After prolonged attempts the project has been given up.

LEAD AND ARSENIC IN FOODS AND PLANT SPRAYS

To the Editor:—Will you please send me the latest information you have on the human tolerance for lead and arsenic, both as obtained from spray residue on fruits and vegetables and as found naturally occurring in foods. Can you give any information regarding the possibility of plant foods absorbing lead or arsenic from soil frequently sprayed with these minerals?

Martha Potgieter, Associate Professor of Foods and Nutrition, Honolulu, Hawaii.

ANSWER.—It is not possible to summarize in any brief way the information about the human tolerance for lead and arsenic from foods. An article by H. O. Calvery (Chronic Effects of Ingested Lead and Arsenic, THE JOURNAL, Nov. 5, 1938, p. 1722) summarizes much of the available information and emphasizes the lack of data regarding the significance of minute traces of lead and arsenic in ordinary foods. It is known that these elements are toxic, and contamination of foods with lead and arsenic should be avoided. The present tolerance for lead and arsenic in fruits as established by the U. S. Food and Drug Administration is 3.57 parts per million for lead (as Pb) and 1.06 parts per million for arsenic (as As). These tolerances were devised with particular reference to spray residues on foods, especially apples and pears. Action can, of course, be brought against any foods containing excessive amounts of lead and arsenic on the ground that these metals are toxic and deleterious substances. There is an interesting exception in the case of shrimp and possibly some other sea foods, in which relatively high concentrations of arsenic are found. It has been shown that this arsenic is in harmless organic combination and is not stored by the animal body but is excreted in the urine.

It is usually considered that there is a real possibility of plant foods absorbing lead or arsenic from soil which has been sprayed with large amounts of toxic insecticides containing these elements. A discussion of the subject is provided by P. J. Hanzlik (Health Hazards of Chemo-Enemies in Contaminated Foods, *Scientific Monthly* **44**:435 [May] 1937).

VITAMINS AND SKIN CANCER

To the Editor:—Have you any evidence that the topical application of vitamin A or vitamin D will accelerate the growth of cutaneous neoplasms, or tend to produce cancer on a normal skin or on a so-called precancerous skin?

Robert R. McLaughlin, M.D., New York.

ANSWER.—There is no published evidence that the topical application of vitamin A or vitamin D or both together will cause tumors in albino mice, the skin of these animals being much more sensitive than that of human beings. It is true that exposure of mice to considerable doses of ultraviolet radiation will cause the appearance of a few epitheliomas of the skin and attempts have been made by Roffo and others to connect the appearance of these tumors with alleged activities of cholesterol, which, of course, is present in the skin. The irradiation of cholesterol with ultraviolet rays causes the formation of some vitamin D. But no proof of this theory of cancer formation has been published. On the other hand, solutions in oil of vitamin A and vitamin D have been used by dermatologists to aid in the healing of chronic ulcerations, especially those connected with damage of the skin by x-rays. These physicians are in a position to note the production of malignant growths on a normal or a precancerous skin and as no such reports are forthcoming it is evident that neither of the substances mentioned will produce cancer on a normal skin or on a precancerous one. The increased growth rate of tumors which is occasionally observed after injury is due to the increased blood supply which feeds the tissues and enables more cells to grow.

FLUOROSCOPY AND THE DIAGNOSIS OF MINIMAL TUBERCULOSIS

To the Editor:—In Queries and Minor Notes in The Journal January 13 (p. 100) I noticed the subject of fluoroscopy and the diagnosis of minimal tuberculosis. To supplement or perhaps amplify the information which you gave I would call attention to two articles (Fellows, H. H., and Orowy, W. H.: Fluoroscopy versus Physical Findings in the Detection of Pulmonary Tuberculosis, *Tr. Nat. Tuberc. Assn.*, 1937, p. 51; Control of Pulmonary Tuberculosis in an Employees Group: Possibilities and Limitations, *Ibid.*, p. 211) which answer one phase of your reply having to do with the percentage of error of routine fluoroscopy as checked by roentgenograms of the chest. Also I present an abstract from our annual reports showing the percentage of new clinically significant cases picked up each year among our home office employees. It has been gratifying to detect over 75 per cent of the cases in the minimal stage during the past several years. The source of this question was also of interest to me, as one of the wholesale jobs of fluoroscopy is being carried out by Dr. Sixto A. Francisco, of Manila, who has a portable traveling fluoroscopic unit with which he has made more than 150,000 examinations. It seems to me that, until some economical and accurate method of carrying out routine case-finding studies is found, fluoroscopy fills the need. Routine roentgenograms, either on celluloid or on paper, are so expensive that, while ideal, they are unobtainable for most surveys. Certainly fluoroscopy seems to be superior to the use of physical examination and subjective symptoms in the detection of early lesions.

H. H. Fellows, M.D., New York.
Assistant Medical Director, Metropolitan Life Insurance Company.

New Cases of Clinically Significant Pulmonary Tuberculosis Discovered Among Employees at the Home Office of the Metropolitan Life Insurance Company

Year	Minimal	Moderately Advanced	Far Advanced
1934	38	8	1
1935	31	11	2
1936	21	4	0
1937	19	0	1
1938	17	6	1
1939		2	0
Per cent: Minimal	77		
Moderately advanced	20		
Far advanced	3		

Average number of employees, 13,837

Medical Examinations and Licensure

COMING EXAMINATIONS

NATIONAL BOARD OF MEDICAL EXAMINERS SPECIAL BOARDS

Examinations of the National Board of Medical Examiners and Special Boards were published in THE JOURNAL, March 9, page 914.

STATE AND TERRITORIAL BOARDS

ALABAMA: Montgomery, June 18-20. Sec., Dr. J. N. Baker, 519 Dexter Ave., Montgomery.

ARIZONA: *Basic Science.* Tucson, March 19. Sec., Dr. Robert L. Nugent, University of Arizona, Tucson. *Medical.* Phoenix, April 2-3. Sec., Dr. J. H. Patterson, 826 Security Bldg., Phoenix.

ARKANSAS: *Basic Science.* May or June. Sec., Mr. Louis E. Gebauer, 701 Main St., Little Rock. *Medical* (Regular). Little Rock, June 6-7. Sec., Dr. D. L. Owens, Harrison. *Medical* (Eclectic). Little Rock, June 6-7. Sec., Dr. Clarence H. Young, 1415 Main St., Little Rock.

CALIFORNIA: *Oral examination* (required when reciprocity application is based on a state certificate or license issued ten or more years before filing application in California), San Francisco, April 17. *Written examination.* San Francisco, June 24-27. Sec., Dr. Charles B. Pinkham, 1020 N St., Sacramento.

COLORADO: Denver, April 2-5. Sec., Dr. Harvey W. Snyder, 831 Republic Bldg., Denver.

CONNECTICUT: *Endorsement.* Hartford, March 26. Sec., Dr. T. P. Murdock, 147 W. Main St., Meriden.

DELAWARE: *Examination.* Dover, July 9-11. *Reciprocity.* Dover, July 16. Sec., Medical Council of Delaware, Dr. Joseph S. McDaniel, 229 S. State St., Dover.

DISTRICT OF COLUMBIA: *Basic Science.* Washington, April 22-23. *Medical.* Washington, May 13-14. Sec., Dr. George C. Ruhland, 203 District Bldg., Washington.

FLORIDA: *Basic Science.* De Land, May 25. Sec., John F. Conn, De Land. *Medical.* Tampa, June 17-18. Sec., Dr. William M. Rowlett, Box 786, Tampa.

GEORGIA: Atlanta, June. Joint-Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta.

IDAHO: Boise, April 2. Dir., Bureau of Occupational Licenses, Mr. H. B. Whittlesey, 355 State Capitol Bldg., Boise.

ILLINOIS: Chicago, April 2-4. Acting Superintendent of Registration, Mr. Lucien A. File, Springfield.

INDIANA: Indianapolis, June 18-20. Sec., Board of Medical Registration and Examination, Dr. J. W. Bowers, 301 State House, Indianapolis.

IOWA: *Basic Science.* Des Moines, April 9. Dir., Division of Licensure and Registration, Mr. H. W. Grefe, Capitol Building, Des Moines.

KANSAS: Kansas City, June 18-19. Sec., Board of Medical Registration and Examination, Dr. J. F. Hassig, 905 N. Seventh St., Kansas City.

KENTUCKY: Louisville, June 5-7. Sec., Dr. A. T. McCormack, 620 S. Third St., Louisville.

MARYLAND: *Medical* Baltimore, June 18-21. Sec., Dr. John T. O'Mara, 1215 Cathedral St., Baltimore. *Homeopathic.* Baltimore, June 18-19. Sec., Dr. Dan R. Evans, 612 W. 40th St., Baltimore.

MICHIGAN: Ann Arbor and Detroit, June 12-14. Sec., Dr. J. Earl McIntyre, 202-4 Hollister Bldg., Lansing.

MINNESOTA: *Basic Science.* Minneapolis, April 2-3. Sec., Dr. J. Charsley McKinley, University of Minnesota, 126 Millard Hall, Minneapolis. *Medical.* Minneapolis, April 16-18. Sec., Dr. Julian F. Du Bois, 350 St. Peter St., St. Paul.

MISSISSIPPI: Jackson, June. Asst. Sec., Dr. R. N. Whitfield, Jackson.

MONTANA: *Reciprocity.* Helena, April 1. *Examination.* Helena, April 2-3. Sec., Dr. A. Cooney, 216 Power Block, Helena.

NEBRASKA: *Basic Science.* Omaha, May 7-8. Dir., Bureau of Examining Boards, Mrs. Clark Perkins, 1009 State Capitol Bldg., Lincoln.

NEVADA: *Reciprocity with oral examination.* Carson City, May 6. Sec., Dr. Frederick M. Anderson, 215 North Carson St., Carson City.

NEW JERSEY: Trenton, June 18-19. Sec., Dr. Earl S. Hallinger, 28 W. State St., Trenton.

NEW MEXICO: Santa Fe, April 8-9. Sec., Dr. Le Grand Ward, 135 Sena Plaza, Santa Fe.

NORTH DAKOTA: Grand Forks, July 2-5. Sec., Dr. G. M. Williamson, 4½ S. Third St., Grand Forks.

OHIO: *Reciprocity.* Columbus, April 2. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

OKLAHOMA: *Basic Science.* Oklahoma City, May 9. *Medical.* Oklahoma City, June 5-6. Sec., Dr. James D. Osborn Jr., Frederick.

OREGON: *Basic Science.* Corvallis, July 6. Sec., State Board of Higher Education, Mr. Charles D. Byrne, University of Oregon, Eugene.

RHODE ISLAND: Providence, April 4-5. Sec., Dr. Robert M. Lord, 366 State Office Bldg., Providence.

SOUTH CAROLINA: Columbia, June 25. Sec., Dr. A. Earle Boozer, 505 Saluda Ave., Columbia.

SOUTH DAKOTA: Rapid City, July 16-17. Dir., Medical Licensure, Dr. J. P. D. Cook, Pierre.

TEXAS: San Antonio, June 17-19. Sec., Dr. T. J. Crowe, 918-20 Mercantile Bldg., Dallas.

VIRGINIA: Richmond, June 18-20. Sec., Dr. J. W. Preston, 301½ Franklin Rd., Roanoke.

WISCONSIN: *Basic Science.* Madison, April 6. Sec., Professor Robert N. Bauer, 3414 W. Wisconsin Ave., Milwaukee. *Medical.* Milwaukee, June 25-28. Sec., Dr. E. C. Murphy, 314 E. Grand Ave., Eau Claire.

Tennessee Endorsement Report

Dr. H. W. Qualls, secretary, Tennessee State Board of Medical Examiners, reports fourteen physicians licensed by endorsement from Aug. 10 through Dec. 22, 1939. The following schools were represented:

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
University of Arkansas School of Medicine		(1936)	Arkansas
Atlanta School of Medicine		(1911)	Georgia
Emory University School of Medicine		(1938)	Alabama
Northwestern University Medical School		(1934)	Michigan
University of Kansas School of Medicine		(1922)	Oklahoma
University of Louisville School of Medicine		(1936)	Kentucky
Tulane University of Louisiana School of Medicine		(1938)	Louisiana
Johns Hopkins University School of Medicine		(1933)	Maryland
Harvard Medical School		(1927)	Georgia
Syracuse University College of Medecine		(1936)	New York
University of Rochester School of Medicine		(1934)	New York
Ohio State University College of Medicine		(1933)	Ohio
University of Pennsylvania School of Medicine		(1919)	N. B. M. Ex.
Medical College of the State of South Carolina		(1930)	S. Carolina

North Carolina Reciprocity Report

Dr. W. D. James, secretary, Board of Medical Examiners of the State of North Carolina, reports thirty-one physicians licensed by reciprocity and eight physicians licensed by endorsement on June 19 and Dec. 11, 1939. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Howard University College of Medicine		(1938)	Virginia
Emory University School of Medicine		(1926)	Georgia
Northwestern University Medical School		(1928)	Michigan
Rush Medical College		(1924)	Illinois, (1933) Georgia
University of Illinois College of Medicine		(1920)	Illinois
Louisiana State University Medical Center		(1938)	Louisiana
Tulane Univ. of Louisiana School of Medicine (1939) Georgia		(1930), (1934)	Louisiana,
Johns Hopkins University School of Medicine		(1929), (1934)	Maryland
University of Maryland School of Medicine and College of Physicians and Surgeons		(1918), (1931)	Maryland
Harvard Medical School		(1935)	Georgia
University of Nebraska College of Medicine		(1935), (1936)	Nebraska
University of Buffalo School of Medicine		(1927)	New York
Duke University School of Medicine		(1937)	Michigan
Ohio State University College of Medicine		(1938)	Ohio
Western Reserve University School of Medicine		(1929)	Ohio
Medical College of the State of South Carolina		(1926)	S. Carolina
Meharry Medical College		(1934)	Tennessee
University of Tennessee College of Medicine		(1936)	Tennessee
Vanderbilt University School of Medicine		(1932)	Tennessee
Medical College of Virginia		(1934), (1937, 3)	Virginia
Univ. of Virginia Department of Medicine		(1933), (1934)	Virginia

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
College of Medical Evangelists		(1933)	N. B. M. Ex.
Duke Univ. School of Medicine		(1933), (1936, 2), (1937, 3)	N. B. M. Ex.
University of Cincinnati College of Medicine		(1936)	U.S.P.H.S.

Michigan October Examination

Dr. J. Earl McIntyre, secretary, Michigan State Board of Registration in Medicine, reports the written examination held at Lansing, Oct. 11-13, 1939. The examination covered fourteen subjects and included 100 questions. An average of 75 per cent was required to pass. Thirteen candidates were examined, all of whom passed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
College of Medical Evangelists		(1939) 78, 82,* 82,* 84,†	85.6†
Rush Medical College		(1939)	80†
Harvard Medical School		(1937), (1938)	78†
Wayne University College of Medicine		(1939) 77,* 81.5,†	85†
Long Island College of Medicine		(1939)	78.5†
Temple University School of Medicine		(1935)	82†

Seventy-five physicians were licensed by reciprocal indorsement from Aug. 3 through Dec. 26, 1939. The following schools were represented:

School	LICENSED BY INDORSEMENT	Year Grad.	Indorsement of
University of Arkansas School of Medicine		(1938)	Arkansas
College of Medical Evangelists (1939) California, N. B. M. Ex.		(1932)	New Mexico,
Stanford University School of Medicine		(1939)	California
Yale University School of Medicine		(1937)	N. B. M. Ex.
George Washington University School of Medicine		(1938)	N. B. M. Ex.
Georgetown University School of Medicine		(1937)	N. B. M. Ex.
Howard Univ. College of Medicine (1938) Georgia		(1925) Alabama,	Louisiana
University of Georgia School of Medicine		(1937)	Georgia
Illinois Medical College		(1909)	Illinois
Loyola University School of Medicine (1938,2) (1939) Illinois		(1932)	Ohio,
Northwestern University Medical School (1938) Connecticut, (1939) Ohio		(1937), (1939)	Illinois,
Rush Medical College (1922), (1937) Illinois, (1931),		(1936)	N. B. M. Ex.
University of Illinois College of Medicine		(1936)	Illinois
Indiana University School of Medicine		(1938)	Indiana
State University of Iowa College of Medicine (1932), (1937), (1938, 3) Iowa		(1920), (1931),	
University of Kansas School of Medicine		(1936), (1938, 2)	Kansas
University of Louisville School of Medicine		(1932)	Kentucky
Johns Hopkins University School of Medicine (1918), (1938) N. B. M. Ex.			Maryland,
Creighton University School of Medicine		(1936)	Vermont
Boston University School of Medicine		(1938)	N. B. M. Ex.
Harvard Medical School		(1932) N. B. M. Ex.,	(1933) New Hamp.
Tufts College Medical School		(1938)	New Hamp.
University of Michigan Medical School		(1938)	N. B. M. Ex.
University of Minnesota Medical School (1937) North Dakota		(1919), (1934)	Minnesota,
St. Louis University School of Medicine		(1937)	California

University of Nebraska College of Medicine	(1937)	Nebraska
Columbia University College of Physicians and Surgeons	(1920), (1935)	New York, (1929) Kansas
Syracuse Univ. College of Med.	(1931)	N. B. M. Ex., (1937) New York
University of Buffalo School of Medicine	(1935)	New York
Duke University School of Medicine	(1937)	N. B. M. Ex.
Ohio State University College of Medicine	(1929), (1938, 2)	Ohio
Western Reserve University School of Medicine	(1938)	Ohio
University of Oklahoma School of Medicine	(1938)	Oklahoma
Hahnemann Medical College and Hospital of Philadelphia	(1930), (1935)	Penna.
Jefferson Medical College of Philadelphia	(1936)	Ohio, (1937) Pennsylvania, (1938) New York
Temple University School of Medicine	(1915)	Missouri
University of Pittsburgh School of Medicine	(1935)	Penna.
Meharry Medical College	(1938)	Tennessee
Vanderbilt University School of Medicine	(1937)	N. B. M. Ex.
University of Texas School of Medicine	(1937), (1938)	Texas
University of Virginia Department of Medicine	(1932)	Virginia

* This applicant has received an M.B. degree and will receive an M.D. degree on completion of internship. License has not been issued.
† License has not been issued.

Book Notices

The Dysenteric Disorders: The Diagnosis and Treatment of Dysentery, Sprue, Colitis and Other Diarrheas in General Practice. By Philip Manson-Bahr, C.M.G., D.S.O., M.D., Senior Physician to the Hospital for Tropical Diseases, London. With an appendix by W. John Muggleton, M.S.M. Cloth. Price, $8. Pp. 613, with 129 illustrations. Baltimore: William Wood & Company, 1939.

This comprehensive work is the result of experience in the tropics and of extensive practice in the Hospital for Tropical Diseases in London. In the course of the clinical work in this hospital in the last thirty years the author has made a study of 508 cases of amebic dysentery, 423 of sprue, 107 of bacillary dysentery, 116 of mucous colitis and forty-two of ulcerative colitis, as well as many cases of other intestinal diseases. This background has afforded a rich experience and a fund of practical knowledge which has provided the material for this much needed book.

The contents fall into nine sections: introduction; bacillary, protozoal and helminthic dysenteries; infective diarrheas; steatorrheas; disorders of the colon resembling dysentery; general disorders resembling dysentery, and other causes of diarrhea and dysenteriform symptoms. Ninety-four treat of bacillary dysenteries, 133 of amebiasis and seventy-eight of sprue and related conditions.

The author stresses the necessity of sigmoidoscopy except when diagnosis is made certain by the recognition of the causative organism in the stools. The mere list of details to be inquired into in a clinical examination fills nearly three pages, with full directions for the procedures.

The historical survey records the recurrence of epidemics of dysentery in the sixth and eighth centuries A. D. and the introduction of ipecacuanha or the "dysentery root" from Brazil in the seventeenth century. Jacobus Bontius, the "grandfather of tropical medicine," described the epidemic of dysentery in Java in 1628. Sydenham, Morton and Willis distinguished between mucous evacuations and bloody flux in the great epidemic of 1668-1672 and noted the association of dysentery and arthritis. Zimmermann, who studied the epidemic in Switzerland, described (1767) the clinical varieties of dysentery. During the first half of the nineteenth century dysentery was generally regarded as but one expression of malaria, partly because of its seasonal recurrence and pandemic character. Epidemics occurred in the American colonies in 1749-1753, 1773-1777 and 1793-1798. In the epidemic of 1834-1836 in Europe it was estimated that fourteen of every thousand inhabitants perished. The dysenteries have long been associated with famine and have followed armies in all wars. A notable omission by the author in the text but not in the bibliography is that of Schaudinn's critical distinction of Endamoeba histolytica, which settled the futile discussion that raged from 1875 to 1903 over the pathogenicity of amebas of the human colon. Even less understandable is the omission of any reference to the extensive protozoal observations of Lewis (1870) in the examination of stools of cholera victims in India.

The discussion of amebiasis is exhaustive and thorough. Special attention is given to liver abscess and to treatment. The author is conservative in matters of treatment, adhering to the use of the drastic emetine-bismuth-iodide therapy though favoring lighter doses and using it in conjunction with chiniofon enemas. He notes with regard to vioform that "he has seen several patients who appear to have been made really ill by its constant use." He rejects acetarsone except as an intestinal tonic and in the after-care of amebic dysentery on the ground that the French claims as to its value as a reliable amebicide have not been substantiated. He notes the wide use of carbarsone in the treatment of chronic amebiasis in the United States and the fact that it is less toxic than acetarsone but states that it should be administered only under supervision. The resort to surgical measures even in resistant cases of intestinal amebiasis is deprecated.

The author rejects McCarrison's dietetic deficiency and Ashford's yeast fungus as factors in the origin of sprue and regards the cause as a specific virus capable of lying dormant in the tissues for years and of being roused to activity by unknown factors. This view is supported by the definite incubation period, the patchy geographic distribution, familial occurrences, and clinical observations showing that it is a specific inflammation of the mucous membranes of the alimentary tract. Malaria and amebiasis are predisposing causes. Rest, high protein diet and palliative medicinal treatments for the various symptoms are given in detail. The discussion of the varied aspects of this disorder is a fine illustration of a comprehending view of disease and its cure.

The appendix deals with the clinical laboratory procedures in diagnosis and culture of the micro-organisms concerned in these intestinal infections. The classified bibliography of twenty-four pages contains about 1,500 entries of author and citation but usually not of titles, the omission of which robs the bibliography of much of its value, since the reader has no clue beyond the classified heading as to the content of the articles. The index is of great value in finding in this great mass of valuable data the information desired on varied subjects.

The author has rendered a great service to both physicians in general practice and to investigators of diseases of the alimentary canal and their causative organisms by this exhaustive and critical treatise.

Electrocardiographic Patterns: Their Diagnostic and Clinical Significance. By Arlie R. Barnes, M.D., Mayo Clinic, Rochester, Minnesota. Cloth. Price, $5. Pp. 197, with 95 illustrations. Springfield, Illinois, & Baltimore: Charles C. Thomas, Publisher, 1940.

This monograph is an outgrowth of an exhibit which the author made and found to be extremely popular. It is a thoughtful coordination of the author's own extensive studies correlated with those appearing in the literature and, while one may not agree with all the deductions arrived at, the book definitely represents a mature consideration and will be a valuable addition to the library of every one who has to deal with electrocardiograms. As the author points out in his introduction, "the proportion of the average text on electrocardiography devoted to the arrhythmias would lead one to believe that this was still the field of its major importance. More recently, the use of the electrocardiograph to detect evidences of myocardial disease has been of major interest and importance to clinicians, and it has been possible to correlate such evidence of myocardial disease with prognosis in large groups of cases, although it is difficult to apply this knowledge to the individual patient in a group."

It is becoming increasingly apparent, primarily as the result of the efforts of American students of this subject, that the primary utility of the electrocardiogram in clinical practice rests on a study of its configuration. In this monograph the greatest stress is properly given to the appearance of the electrocardiogram in coronary disease and in myocardial infarction, but the more recently developed and growing subject of the electrocardiographic appearance in other diseases is also considered. The author discusses strains on the left and on the right side of the heart, pericarditis, infections, metabolic disorders and drugs. The last chapter is devoted to the newly developed subject of precordial leads and includes a number of summary tables of the measurements in 100 normal cases of the deflections in all the chest leads recommended recently by the Committee of the American Heart Association on the Standardization of Precordial Leads. These tables should be extremely useful to the reader in setting up the limits of normality for those chest leads which are not commonly employed.

The text is well documented with case reports, electrocardiograms and idealized diagrams. It is regrettable that the author uses the old way of depicting the direction of the deflections of the chest lead; this is upside down to that recommended by the committee, of which the author himself was a member. It is difficult to see why the author did this when it would have been easy to redraw the drawings of his records as inverted mirror images. The failure to follow the newly and universally established standard for the chest lead and the consequent use of terms in the text applicable to the lead as illustrated will be confusing to the average reader. It is hoped that in the next edition the author will take the trouble to correct this error. Confusion may also arise from the fact that various terms are applied in the text to the segment between QRS and T deflections. Nevertheless, those interested in clinical electrocardiography will find that this monograph is extremely stimulating and helpful in filling a gap by a critical assay of the recent literature on the configuration of the electrocardiogram.

Common Skin Diseases. By A. C. Roxburgh M.A., M.D., B.Ch., Physician in Charge of the Skin Department, St. Bartholomew's Hospital, London. Fifth edition. Cloth. Price, 15s. Pp. 416, with 187 illustrations. London: H. K. Lewis & Co., Ltd., 1939.

The original purpose of the author and the publishers was to provide a small compact work for the general practitioner covering the commoner skin diseases. This book deals with 120 of more than 300 skin diseases. The fact that it has already run through four editions attests its popularity. Constant revision has kept it thoroughly abreast of progress. To assist the student, an index of preliminary diagnoses has been placed at the beginning of the book to encourage him to observe accurately the type of lesion of which any given eruption is composed and to serve as a guide in looking up diseases in the book or in larger works. The various diseases are well described, briefly but adequately. Considerable emphasis is placed on differential diagnosis and treatment, and both of these are well handled. Treatment reflects the long experience of the author; it is brief but very much to the point. In this edition there are fourteen new illustrations, some notes on the new emulsifying bases, indications for administering estrogen and the therapeutic possibilities of sulfanilamide therapy. There are short new articles on the avitaminoses and granuloma annulare. The dosage of roentgen therapy is expressed in roentgens instead of pastilles. The illustrations are excellent. The text is printed with large, legible type on good paper. The book is an excellent one and if its present standard is continued it will remain a popular textbook for years to come.

Ophthalmology. By Burton Chance, M.D. XX, Clio Medica: A Series of Primers on the History of Medicine. Edited by E. B. Krumbhaar, M.D. Cloth. Price, $2. Pp. 240, with 6 illustrations. New York: Paul B. Hoeber, Inc., 1939.

Bacteriology. By William W. Ford, M.D., D.P.H. XXII, Clio Medica: A Series of Primers on the History of Medicine. Edited by E. B. Krumbhaar, M.D. Cloth. Price, $2.50. Pp. 207, with 8 illustrations. New York & London: Paul B. Hoeber, Inc., 1939.

These books constitute new additions to the excellent series under the general editorship of E. B. Krumbhaar.

Dr. Chance has traced the progress of ophthalmology from the earliest of written records to the present time. The nature of the eye made it particularly subject to superstitions. Thus the literature of every region is replete with notions, some of which, however, later became established as fact. After a series of chapters in which the lore of various nations is reviewed, the author gives special attention to cataract, color vision, the development of drugs and ophthalmic surgery, and finally provides concluding chapters on ophthalmic education, organizations and national development. The work is a concise summary of the history of ophthalmology.

The volume on bacteriology, by Dr. W. W. Ford, is dedicated to Dr. William H. Welch. After considering the development of knowledge concerning magnification and the work of Leeuwenhoek, he carries forward his story in chronological order through the work of Henle, Pasteur, Lister, Cohn and Koch. He reveals in his concluding chapters the manner in which immunology developed from bacteriology. The rigid bacteriology of the century has been modified and future investigations must concern themselves with the life cycle of individual types of organisms.

Primer of Allergy: A Guidebook for Those Who Must Find Their Way Through the Mazes of This Strange and Tantalizing State. By Warren T. Vaughan, M.D. Cloth. Price, $1.50. Pp. 140, with illustrations by John P. Tillery. St. Louis: C. V. Mosby Company, 1939.

Occasionally concise treatises for the public are written on subjects of which insight and understanding are necessary for intelligent cooperation. The subject of allergy is certainly an ideal assignment for well placed literary effort, and Dr. Vaughan has done much with it. Many physicians and certainly a larger number of laymen have desired a book of this type for some time and it should be enthusiastically received. The book is so written that it can be recommended by any physician regardless of his personal approach to the subject. In fact, a book of this type placed in the hands of his patient should prove a real service to him in his practice. The text is profusely and attractively illustrated by cartoons and caricatures on allergy. It not only provides authoritative information on all phases of the subject of allergy but is written in a literary style that is both engaging and entertaining. Every physician will enjoy reading this concise and masterful message to the public and will unquestionably recommend it to his allergic patient. This is a real contribution to the layman's education in this important and complex field of medical science and deserves a place in every home where there is sneezing and wheezing.

Traité d'ophtalmologie. Publié sous les auspices de la Société française d'ophtalmologie par MM. P. Bailliart, Ch. Coutela, E. Redslob et E. Velter. René Onfray: Secrétaire général. Tome III: Techniques de laboratoire, examen de la motilité et de la vision binoculaire anomalies de la vision, pathologie (début). Par MM. E. Aubaret et al. Cloth. Price, 400 francs. Pp. 1,148, with illustrations. Paris: Masson & Cie, 1939.

This volume of the new French treatise was somewhat late in making its appearance but still was under the time schedule set in the beginning. It contains laboratory technic in ophthalmology in four parts by Dubois-Poulson of Paris, Carrère of Montpellier and Senevet of Algiers, examination of motility by Nordman of Strasbourg and Onfray of Gouin, anomalies of vision, light and color sense by Joseph of Paris, Mawas of Paris, Hambreson of Brussels, Haas of Paris, Bourdier of Beaujon and Polak of Paris, and general and special pathology divided into lesions by Redslob and Gery of Strasbourg, ocular allergy by Koutseff of Strasbourg, the vitamins by Bezssonoff of Strasbourg, relationship of pathology to ophthalmology by Terrien of Paris, internal secretions by Francescetti and Gorin of Geneva, general ophthalmic semeiology by Terrien of Paris, diseases of the superciliary area by Villard of Montpellier, diseases of the lids by Aubaret of Marseilles, tumors of the lids and lacrimal caruncle by Kalt of Paris, and disturbances of the motor apparatus of the lids by Jean-Sédan of Marseilles. With the great variety of material, this volume is even more spotty in character than are its predecessors. The chapters dealing with examination of the eyes by various methods are probably the weakest that have appeared thus far. In contrast to that the chapter on tumors of the lids by Marcel Kalt is as complete and thorough as can be found anywhere in the literature. This volume contains fewer illustrations than the others, although the few color plates in the closing chapters are good. The general format of the volume complies with that set up for the entire series.

Food Control: Its Public Health Aspects. A Manual for Regulatory Officers, Food Technologists, and Students of the Food Industry. By James Houston Shrader, Ph.D., Instructor in Biochemistry, School of Hygiene and Public Health, Johns Hopkins University, Baltimore. Cloth. Price, $4. Pp. 513. New York: John Wiley & Sons, Inc.; London: Chapman & Hall, Limited, 1939.

This is a unique contribution to the literature on food control. It provides not only a discussion of the public health aspects of control measures but also a discussion of the nutritional significance of different phases of food technology. Each class of products is discussed from the points of view of technology, relation to public health and problems of regulatory control. The author, who is now editor of the *Journal of Milk Technology*, has had extensive experience in the subject matter covered by the book. The manual contains information about many new products that have been but recently placed on the market. It is a readable book that will be indispensable for all regulatory officers, food technologists and students of the food industry.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Dental Practice Acts: Corporate Practice Authorized Neither by Charter of Corporation nor by Dental Act.—The state of Indiana, on the relation of the board of medical examiners, sought to enjoin the Boston System Dentists, a corporation, from practicing dentistry in Indiana. The trial court denied the injunction and the state appealed to the Supreme Court of Indiana.

The defendant corporation was incorporated under the general laws of Indiana on March 2, 1917, "for the purpose of engaging in and carrying on the business of dentistry and every branch thereof; the manufacturing, buying, selling and dealing in dental supplies, artificial dentists' crowns and bridgework, porcelain and gold inlays and other merchandise; printing and advertising and doing all other acts connected with or incident to the business of dentistry or any branch thereof." The corporation maintained in the city of Gary an office with the usual facilities used by practicing dentists. It owned the equipment and paid the operating expenses of the office. Two licensed dentists used the facilities and carried on a dental practice in the office, fees being collected by a cashier employed by the corporation and remitted by her to its treasurer in Chicago. The dentists received, by way of remuneration, salaries fixed by contract and commissions depending on the volume of income.

The original dental practice act of Indiana, enacted in 1913, prohibited "any person" from practicing dentistry without a license, and this prohibition was still in effect at the time of the trial of this case. An amendment to the dental practice act became effective on March 9, 1917, seven days after the defendant's incorporation, providing as follows:

> That it shall not be unlawful for any one duly licensed to do so, to practice dentistry, or to hold himself out as a practitioner of dentistry, under the name of any legally incorporated dental company, existing and in operation prior to the taking effect of this act.

It was conceded that the defendant had no license to practice dentistry. The substantial question before the court was whether the defendant was engaged in the practice of dentistry and what rights, if any, it possessed under its charter and under the dental practice act as amended in 1917. The corporation contended that (1) it was not engaged in the practice of dentistry; (2) the business in which it was engaged was specifically authorized by its charter and by the 1917 amendment to the dental practice act; (3) the injunctive process was not an appropriate enforcement remedy, and (4) to grant the injunction would constitute a forfeiture of its character and would destroy its vested rights in violation of the principles of constitutional law.

In the opinion of the Supreme Court, the defendant's method of doing business constituted the practice of dentistry on its part. It occupied the relation of master toward the licensed dentists who performed the actual services; they were its servants for hire. The regulation of the dental profession, the court pointed out, is not generally dissimilar in effect to that imposed on the practice of medicine, and it has been held that a corporation may not lawfully engage in the practice of medicine directly or by employing licensed persons for that purpose. *Iterman* v. *Baker* (Ind.), 15 N. E. (2d) 365. The same rule is applicable to the practice of dentistry. The 1917 amendment to the dental practice act authorized any one licensed to practice dentistry to hold himself out as a practitioner under the name of any legally incorporated dental company existing and in operation prior to the taking effect of the amendatory act. This proviso, the court pointed out, was clearly for the benefit of persons legally licensed to practice dentistry. It may not be construed to extend any privileges to a corporation.

In answer to the contention interposed by the corporation that the remedy of injunction was not proper because the practice of dentistry without a license is a misdemeanor, punishable by fine and imprisonment, the court pointed to the fact that the dental practice act specifically authorizes the use of the injunctive process. But, the court continued, if an injunction is not specifically authorized the situation presented in the present case would bring it within the rule applicable where the protection of the public welfare is involved. In such cases equity will intervene notwithstanding the fact that the wrong complained of may also be a crime.

To prohibit the corporation from engaging in the unauthorized practice of dentistry by injunction does not destroy any of its vested rights, the court said. The practice of dentistry is a personal privilege and not a matter of right. It is a profession and not a business. The corporation acquired no right to engage in that profession by reason of its articles of incorporation, adopted in 1917, because the state had already restricted the right to practice dentistry, by the dental practice act of 1913, in such a manner as to exclude corporations. Nor would the corporation's corporate franchise be forfeited by restraining it from unlawfully engaging in the practice of dentistry. By the terms of its charter, the corporation may legitimately manufacture, buy, sell and deal in dental supplies and other merchandise. It cannot be enjoined from engaging in that business; but it may not follow a skilled profession the practitioners of which are required to have a personal license.

The judgment of the trial court was therefore reversed with directions to enter judgment for the state permanently enjoining the corporation from engaging in the practice of dentistry in Indiana.—*State ex rel. Indiana State Board of Dental Examiners v. Boston System Dentists (Ind.), 19 N. E. (2d) 949.*

Society Proceedings

COMING MEETINGS

Academy of Physical Medicine, Richmond, Va., Apr. 24-26. Dr. Herman A. Osgood, 144 Commonwealth Ave., Boston, Secretary.
Alabama, Medical Association of the State of, Birmingham, Apr. 16-18. Dr. D. L. Cunningham, 519 Dexter Ave., Montgomery, Secretary.
American Association for the Study of Goiter, Rochester, Minn., Apr. 15-17. Dr. W. Blair Mosser, 133 Biddle St., Kane, Pa., Secretary.
American Association for the Study of Neoplastic Diseases, Louisville, Ky., Apr. 11-13. Dr. Eugene R. Whitmore, 2139 Wyoming Ave. N.W., Washington, D. C., Secretary.
American Association of Anatomists, Louisville, Ky., Mar. 20-22. Dr. E. R. Clark, Dept. of Anatomy, Univ. of Pennsylvania School of Medicine, Philadelphia, Secretary.
American Association of Pathologists and Bacteriologists, Pittsburgh, Mar. 21-22. Dr. Howard T. Karsner, 2085 Adelbert Rd., Cleveland, Secretary.
American Association of the History of Medicine, Atlantic City, N. J., May 4-5. Dr. Henry E. Sigerist, 1900 East Monument St., Baltimore, Secretary.
American College of Physicians, Cleveland, Apr. 1-5. Mr. E. R. Loveland, 4200 Pine St., Philadelphia, Executive Secretary.
American Orthopedic Association, Kansas City, Mo., May 4-10. Dr. Ralph K. Ghormley, 110 Second Ave. S.W., Rochester, Minn. Secretary.
American Pediatric Society, Skytop, Pa., May 2-4. Dr. Hugh McCulloch, 123 North Euclid Ave., St. Louis, Secretary.
American Society of Biological Chemists, New Orleans, Apr. 13-17. Dr. C. G. King, Dept. of Chemistry, Univ. of Pittsburgh, Pittsburgh, Secretary.
American Surgical Association, St. Louis, May 1-3. Dr. Charles G. Mixter, 319 Longwood Ave., Boston, Secretary.
Arizona State Medical Association, Tucson, Apr. 18-20. Dr. Leslie R. Kober, 15 East Monroe St., Phoenix, Secretary.
Arkansas Medical Society, Fort Smith, Apr. 15-17. Dr. W. R. Brooksher, 602 Garrison Ave., Fort Smith, Secretary.
Association of American Physicians, Atlantic City, N. J., May 7-8. Dr. Hugh J. Morgan, Vanderbilt University Hospital, Nashville, Tenn., Secretary.
California Medical Association, Coronado, May 6-9. Dr. George H. Kress, 450 Sutter St., San Francisco, Secretary.
Florida Medical Association, Tampa, Apr. 29-May 1. Dr. Shaler Richardson, 111 West Adams St., Jacksonville, Secretary.
Georgia, Medical Association of, Savannah, Apr. 23-26. Dr. Edgar D. Shanks, 478 Peachtree St. N.E., Atlanta, Secretary.
Iowa State Medical Society, Des Moines, May 1-3. Dr. R. L. Parker, 3310 Sixth Ave., Des Moines, Secretary.
Louisiana State Medical Society, New Orleans, Apr. 23-24. Dr. P. T. Talbot, 1430 Tulane Ave., New Orleans, Secretary.
Maryland, Medical and Chirurgical Faculty of, Baltimore, Apr. 23-24. Dr. Richard T. Shackelford, 1211 Cathedral St., Baltimore, Secretary.
Minnesota State Medical Association, Rochester, Apr. 22-24. Dr. B. B. Souster, 493 Lowry Medical Arts Building, St. Paul, Secretary.
Missouri State Medical Association, Joplin, Apr. 30-May 1. Mr. E. H. Bartelsmeyer, 634 North Grand Blvd., St. Louis, Executive Secretary.
Nebraska State Medical Association, Omaha, Apr. 22-25. Dr. R. B. Adams, 416 Federal Securities Building, Lincoln, Secretary.
New York, Medical Society of the State of, New York, May 6-9. Dr. Peter Irving, 2 East 103d St., New York, Secretary.
North Dakota State Medical Association, Minot, May 6-8. Dr. Albert W. Skelsey, 20½ North Broadway, Fargo, Secretary.
Northern Tri-State Medical Association, Battle Creek, Mich., Apr. 9. Dr. E. Benjamin Gillette, 320 Michigan St., Toledo, Ohio, Secretary.
Pacific Coast Surgical Association, Portland, Ore., Apr. 3-6. Dr. H. Glenn Bell, University of California Hospital, San Francisco, Secretary.
Society for the Study of Asthma and Allied Conditions, Atlantic City, N. J., May 4. Dr. W. C. Spain, 116 East 53d St., New York, Secretary.
Tennessee State Medical Association, Chattanooga, Apr. 9-11. Dr. H. H. Shoulders, 706 Church St., Nashville, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1930 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Cancer, New York

37: 493-672 (Dec.) 1939

Gliomas in Animals: Report of Two Astrocytomas in Common Fowl. E. Jungherr and A. Wolf, New York.—p. 493.

Mammary Glands of Mature Female Mice of Strains Varying in Susceptibility to Spontaneous Tumor Development. W. U. Gardner, L. C. Strong and G. M. Smith, New Haven, Conn.—p. 510.

Effect of Dibenzanthracene on Liver. A. Goerner and M. Margaret Goerner, Brooklyn.—p. 518.

Dibenzanthracene Mouse Sarcomas: Histology. W. H. Lewis, Baltimore. —p. 521.

Local Effect of Zinc on Development of Marsh Buffalo Adenocarcinoma. F. Bischoff and M. Louisa Long, Santa Barbara, Calif.—p. 531.

Chromosomal and Extrachromosomal Influence in Relation to Incidence of Mammary Tumors in Mice. W. S. Murray and C. C. Little, New York.—p. 536.

Artificial Benignancy of Neoplasm: III. Metabolism of Sarcoma 180 Growing at Different Rates. J. Muus, F. N. Craig and W. T. Salter, Boston.—p. 553.

Retention of Immunizing Power by Shope Papilloma After Exposure to Ultraviolet Radiation. W. H. Woglom and J. Warren, New York. —p. 562.

*Study of Fuchs Reaction for Cancer. O. Rosenthal, Philadelphia. —p. 566.

Polarographic Studies of Human Blood Serums. A. C. Walker, Short Hills, N. J., and S. P. Reimann, Philadelphia.—p. 585.

Fuchs Reaction for Cancer.—Rosenthal reviews the literature on serologic tests for cancer. Of all the cancer tests based on reactions between serums and cancer-specific substances, only the test of Fuchs has been verified by many authors. Since technical difficulties, to which occasional failures of the reaction had been ascribed, were eliminated by Minibeck, the author studied the value of the modified test and found that the Fuchs reaction demonstrates differences between serums from patients with and without cancer only in a statistical sense but is without real value for diagnosis in an individual case. The chief difficulty of the test lies neither in the technic of the reaction nor in the preparation of the substrates but in the fact that the selection of specific substrates of such activity that the reaction values are unquestionably beyond the range of error is a matter of chance. A comparison of the results of other authors using the Fuchs test supports these observations, although most of the conclusions are more favorable. Whether the test can be of any aid in the diagnosis and prognosis of cancer in the patient can be decided only if the mechanism of the reaction can be explained in detail.

American Journal of Clinical Pathology, Baltimore

10: 1-132 (Jan.) 1940

*Observations on Human Beings with Cancer, Maintained at Reduced Temperatures of 75 to 90 F. L. W. Smith and T. Fay, Philadelphia. —p. 1.

Current Conceptions of Physiology of Kidney. J. M. Hayman Jr., Cleveland.—p. 12.

Renal Function. M. H. Barker, Chicago.—p. 21.

Clinical Aspects of Renal Disease. L. Leiter, Chicago.—p. 30.

Studies on Experimental Hypertension: XII. Experimental Production and Pathogenesis of Hypertension Due to Renal Ischemia. H. Goldblatt, Cleveland.—p. 40.

A One Hour Renal Condition Test. W. G. Exton and A. R. Rose, Newark, N. J.—p. 73.

Treatment of Pneumonia with 2-(P-Aminobenzenesulfamido) Pyridine. A. V. St. George, A. F. Kraetzer and W. Magee, with assistance of W. S. Gibbs Jr. and L. Stix, New York.—p. 97.

Reduced Temperatures and Cancer.—From December 1938 to October 1939, Smith and Fay subjected thirty-three patients to seventy-five individual inductions of reduced body temperature ranging from 74 to 90 F. These patients were in the hopeless and terminal stages of cancer, presenting themselves chiefly for relief of pain. They have had all the surgical and radiation treatment indicated and have been as a whole in extremely poor physical condition; emaciated, cachectic, often anemic. Physiologic data from a study of these patients while in this physical state, resembling "hibernation" in many respects, is recorded. An enormous amount of work will be necessary before any conclusions can be drawn. Previous to these studies it was the general impression that prolonged reduction of temperature below 94 or 95 F. was inevitably fatal. These studies have shown that patients can be maintained for from five to eight days at temperature levels in the eighties, that relief of pain can be regularly anticipated for from a few days to as long as five months, and that regressive changes in young embryonal cells, particularly in carcinoma, take place as a result. The authors believe that the lowered physiologic activity due to the low temperature interferes with the metabolism of these cells. The studies suggest that the entire body economy is reduced, that the circulatory rate and blood flow are slowed and that the liver is in a relatively dormant and inactive state as shown by low nitrogenous analyses of the blood. The basal metabolism is apparently reduced from 20 to 25 per cent. Lower figures may well be anticipated when special methods are devised for more accurate recording. The procedure is not entirely devoid of risk. It is perhaps more particularly applicable from the clinical standpoint to chronic cases for the control of pain, especially to the terminal stages of cancer of bedridden patients. Its usefulness in the therapeutic field otherwise remains a problem to be solved in the future.

American J. Digestive Diseases, Huntington, Ind.

7: 1-76 (Jan.) 1940

Dilatation of Bile Ducts and Its Relation to Distress After Cholecystectomy. K. W. Benson, Rochester, Minn.—p. 1.

Comparative Value of Serial Hippuric Acid Excretion, Total Cholesterol, Cholesterol Ester and Phospholipid Tests in Diseases of Liver: II. Clinical Comparison of Tests. F. W. White, E. Deutsch and S. Maddock, Boston.—p. 3.

Symptomatology of Chronic Atrophic Gastritis. R. Schindler, Chicago, and H. M. Murphy, Buffalo.—p. 7.

Desiccated Hog's Stomach Extract (Ventriculin) in Treatment of Atrophic Gastritis. L. Schiff and S. Goodman, Cincinnati.—p. 14.

*"Clubbed Fingers" and Ulcerative Colitis. C. P. Schlicke and J. A. Bargen, Rochester, Minn.—p. 17.

Effect of Barbiturates on Digestive Secretion. R. J. Coffey, T. Koppanyi and C. R. Linegar, Washington, D. C.—p. 21.

*Vitamin B Complex and Its Constituents in Functional Digestive Disturbances. F. F. Chesley, Jean Dunbar and L. A. Crandall Jr., Chicago.—p. 24.

Peptic Ulcer Treated by Posterior Pituitary Preparations: Clinical and Experimental Observations. M. H. Metz and R. W. Lackey, with collaboration of P. E. Wigby, A. B. Small and C. O. Patterson, Dallas, Texas.—p. 27.

Clinical Results from Continuous Intragastric Drip Using Colloidal Aluminum Hydroxide in Treatment of Peptic Ulcer. J. T. Eads, Philadelphia.—p. 32.

Etiology of Tuberculous Anal Abscess and Fistula. C. L. Martin, W. I. Lansford and H. C. Sweany, Chicago.—p. 36.

Pectinates, with Special Reference to Nickel Pectinate and Their Therapeutic Value. P. B. Myers and A. H. Rouse, New York.—p. 39.

Gastrointestinal Pseudoleukemia: Report of Case. S. Tannhauser and R. Davison, Tucson, Ariz.—p. 45.

"Clubbed Fingers" and Ulcerative Colitis.—Schlicke and Bargen point out that clubbing of the fingers is seldom a primary condition. Bronchiectasis, pulmonary tuberculosis, empyema and mediastinal or pulmonary tumor are commonly present. Isolated cases have been reported to follow various disorders of the kidneys and liver, amyloid disease and cachexia strumipriva. There has been little mention of clubbed fingers as a sequela of chronic ulcerative colitis. The authors review seven instances of clubbed fingers in patients under treatment for chronic ulcerative colitis seen within the last two years at the Mayo Clinic. In none of these cases was there evidence of any other primary disease. To explain clubbed fingers as a sequela of ulcerative colitis is as unsatisfactory as attempting to explain its more frequently associated occurrence with other conditions.

Vitamin B Complex and Digestive Disturbances.—Chesley and his associates state that a high percentage of forty-four patients with various functional digestive disturbances were improved by the administration of a vitamin B complex concentrate in large doses. That these patients were deficient in the vitamin B complex was suggested not only by the results of treatment but also by the demonstration of an abnormally low excretion of one of the vitamin B complex constituents (thiamin). Preliminary tests indicated that effectiveness of the whole complex is not due to vitamin B_1 (thiamin) or to vitamin B_2 (riboflavin). Part of the effectiveness is due to the action of the

nicotinic acid. The authors do not wish to suggest that nicotinic acid in pure crystalline form should find a place in the treatment of functional digestive disorders. The use of the whole vitamin B complex appeals to them as a more rational procedure because in their experience it produces better therapeutic results and it is probable that deficiencies of several vitamin B complex fractions are more common than deficiencies of a single factor.

American Journal of Medical Sciences, Philadelphia

199: 1-156 (Jan.) 1940

*Nature of Hemorrhagic Disease of the Newborn: Delayed Restoration of Prothrombin Level. A. J. Quick and A. M. Grossman, Milwaukee.—p. 1.

Blood Studies on the Newborn: II. Direct and Total Blood Bilirubin: Determinations over a Nine Day Period, with Special Reference to Icterus Neonatorum. T. R. Waugh, F. T. Merchant and G. B. Maughan, Montreal.—p. 9.

*Double Quotidian Temperature Curve of Gonococcic Endocarditis: Diagnostic Aid. P. H. Futcher, Baltimore.—p. 23.

Role of "Static Blood Pressure" in Abnormal Increments of Venous Pressure, Especially in Heart Failure: I. Theoretical Studies on Improved Circulation Scheme Whose Pumps Obey Starling's Law of the Heart. I. Starr and A. J. Rawson, Philadelphia.—p. 27.

Id.: II. Clinical and Experimental Studies. I. Starr, Philadelphia.—p. 40.

*Treatment of Pneumococcic Pneumonia: Comparison of Results Obtained with Specific Serum and with Sulfapyridine. H. F. Dowling and T. J. Abernethy, Washington, D. C.—p. 55.

Cure of Type XIV Pneumococcic Meningitis by Sulfapyridine, Confirmed by Autopsy: Case Report. L. L. Terry and E. E. Beard, Cleveland.—p. 63.

*Chloride Excretion in Hypopituitarism, with Reference to Adrenocortical Function. D. J. Stephens, Rochester, N. Y.—p. 67.

Amount of Lymphoid Tissue of Human Appendix and Its Weight at Different Age Periods. J. M. S. Hwang and E. B. Krumbhaar, Philadelphia.—p. 75.

Further Studies of Intracutaneous Method of Typhoid Vaccination. L. Tuft, Philadelphia.—p. 84.

Natural History and Diagnosis of Gastric Ulcer. J. L. Drossner and T. G. Miller, Philadelphia.—p. 90.

Evidence Regarding Control of Hepatic Glycogenolysis. W. B. Cannon, Boston.—p. 98.

Simplified Method for Calculating Diabetic Diets. R. Richardson, Philadelphia.—p. 102.

Hemorrhagic Disease of Newborn Infants.—Quick and Grossman studied the prothrombin concentration of the blood of newborn infants with Quick's method. They conclude that at birth the prothrombin in the baby's blood is relatively high but often drops precipitously during the first days of life and then, strangely, is restored spontaneously. The frequency with which the prothrombin falls in normal infants makes it highly probable that all infants are in danger of hemorrhage during the first few days of life. In the recognized neonatal hemorrhagic disease it is likely that the fundamental cause is a delay in the spontaneous restoration of the prothrombin level. Consequently, if an infant should bleed accidentally the small loss of blood may be sufficient to reduce the already low prothrombin level to a point at which hemorrhage becomes difficult to control and a vicious circle is initiated. The cause of the prothrombin deficiency seems to be an inadequate storage of prothrombin or of vitamin K in the fetus. Presumably as soon as the baby is born the physiologic demands promptly exhaust the available prothrombin. As there is apparently a reserve neither of vitamin K nor of prothrombin, a marked decrease of the latter occurs. The condition is clearly due to a lack of vitamin K, for the prothrombin can be restored promptly to normal by giving the baby an oral concentrate of this vitamin and the serious fall in concentration can be prevented. Since the drop in prothrombin is distinctly a manifestation of vitamin K deficiency, the rise must be due to a supply of this vitamin which was not present at birth, and since the food intake during the first few days is scarcely sufficient to assure an adequate supply, another source must be sought. Bacteria readily synthesize vitamin K (Almquist). At birth the intestinal contents of the baby are sterile, but in a very short time, especially if the baby is allowed to suckle, bacteria are introduced and an intestinal flora is established. The time relation between the beginning of bacterial activity and the restoration of the prothrombin level makes it appear likely that the available vitamin K is of bacterial origin. The practice of putting the baby to the breast early may serve the primary purpose of introducing harmless but useful bacteria into the alimentary tract. Although no positive proof exists that neonatal cerebral hemorrhage is one form of "hemorrhagic disease," it seems very likely that it is and that the lowered prothrombin is the important factor. If the clotting agent were normal in amount, the excess of thromboplastin which is present in the brain would speedily stop the hemorrhage. As the baby is apparently not born with a marked deficiency of prothrombin, its fall can be accomplished by administering vitamin K orally. But in the normal infant this hardly seems necessary. Perhaps a return to the practice of early breast feeding will be sufficient. But in any case of difficult labor with probable intracranial injury the oral administration of a concentrate of vitamin K should begin immediately and be continued for several days. Vitamin K should also be given promptly if slight oozing is noticed from the umbilical cord or any other small wound, or if blood appears in the stool or urine. Unless the hemorrhage is severe a direct blood transfusion need not be given, as vitamin K acts promptly. When the normal prothrombin level is once established in the baby it becomes difficult to cause any appreciable diminution. It is therefore usually possible to operate on a child after it is a week old without danger of untoward bleeding. But, if an operation must be performed earlier, the prothrombin should be determined by Quick's method and if it is low vitamin K should be given preoperatively.

Double Quotidian Temperature Curve of Gonococcic Endocarditis.—Futcher discusses a particular form of temperature curve which seems relatively specific for gonococcic endocarditis. The temperature charts of twenty-four patients with gonococcic endocarditis were examined. The diagnosis was established by postmortem examination in twenty-two. Of the two instances not studied post mortem one blood culture was positive for the gonococcus before death and the other patient, whose blood culture was also positive, recovered from her illness. All of these twenty-four patients were in the hospital for six days or longer. Eleven of the twenty-four temperature charts showed the double peaks of fever for a period of from five to twenty-two consecutive days, the average being ten days. The prototype of these eleven patients is one who, at 6 a. m., has a shaking chill lasting a few minutes followed by a rise in rectal temperature from an initial level of 98 F. at 4 a. m. to 105 F. at 8 a. m., with subsequent sweating and a precipitous fall to 98 F. at 4 p. m. Then a repetition of the chill and the rest of the episode follows at 6 p. m., and the temperature returns to 98 F. by 4 a. m. of the next day only to renew the twelve hour cycle. There was moderate variation in the timing of the episodes from day to day in the same patient. The double peak temperature curve was not present during the whole period that the patient was observed. Usually a patient with a previously intermittent curve lapsed temporarily into the twelve hour cycles for a period of from one to three weeks, the curve subsequently becoming irregular again. Four patients with gonococcic endocarditis who were being treated with sulfanilamide were having the double quotidian fever when the drug was first administered but the double peak disappeared within forty-eight hours and the temperature curve was lowered subsequently. The phenomenon therefore will probably not be observed among patients receiving sulfanilamide. The patients who never showed the cycles usually had a high and intermittent fever, often with a regular twenty-four hour cycle and diurnal variations from 5 to 7 degrees F. None of the charts of three patients with gonococcic septicemia uncomplicated by endocarditis sustained double peaks, although two of them showed an irregular, double quotidian curve for forty-eight hours. The explanation for the twelve hour febrile cycle in gonococcic endocarditis is not apparent to the authors, but they emphasize the phenomenon as a valuable aid to diagnosis, feeling that it deserves somewhat more prominence than is assigned to it.

Pneumococcic Pneumonia.—Dowling and Abernethy compared the value of sulfapyridine and serum in the treatment of pneumonia. From September 1938 through July 15, 1939, they treated 226 consecutive cases of pneumonia; ninety of the patients were given serum alone, 130 sulfapyridine alone and six extremely ill patients received both the drug and the serum. Typing of each patient's sputum was performed at least once. One or more blood cultures from and roentgenograms were taken of nearly every patient. Cultures were made of all exudates and from the lungs at postmortem. From August until Nov. 17, 1938, before sulfapyridine became available, patients were treated with serum alone. After that, patients with type I pneumonia were alternated, one being given serum and the next

the drug. When a serum for a particular type was on hand, it was used; otherwise the patient was treated with sulfapyridine. Among the seventy cases of type I, II, V, VII or VIII pneumonia treated with serum there were ten deaths (14.3 per cent). There were five deaths among the fifty-two patients treated with sulfapyridine (9.6 per cent). The four individuals treated with a combination of serum and sulfapyridine died. When only the bacteremic cases are considered, there were three deaths among seventeen patients treated with serum and the same number among sixteen patients treated with the drug. When treatment was begun during the first four days of the illness, the mortality rate for the forty-six patients receiving their first dose of serum during this early period was 10.8 per cent and for the thirty-four receiving sulfapyridine it was 2.9 per cent. When pneumonias caused by all types of pneumococci are considered, the mortality of the ninety-six treated with serum was 16.7 per cent as compared to 11 per cent of the 136 treated with sulfapyridine. Among the bacteremic cases the percentages were 23.8 and 20, respectively. The effect of the therapeutic agents on the course of pneumonia is also evaluated by the incidence of empyema. Among the ninety-six serum-treated cases there were six cases of empyema, while among the 136 treated with sulfapyridine empyema developed in four. In comparing the two therapeutic agents with regard to their ability to cause a rapid crisis, the authors find that the most definite results were obtained in the pneumonias caused by types I, II, V, VII and VIII pneumococci. Among the sixty patients in this group who recovered after serum treatment, a crisis occurred within twelve hours in 43.3 per cent, within eighteen hours in 58.3 per cent and within twenty-four hours in 61.7 per cent. The corresponding figures for those receiving sulfapyridine were 29.8, 46.8 and 63.8 per cent. In short, an early crisis occurred more frequently among those treated with serum, but after twenty-four hours crises occurred as frequently among the patients receiving sulfapyridine as among those given serum. When pneumonias caused by all types of pneumococci are considered, the same trends are evident but to a much less degree. While both serum and sulfapyridine are of great value in the treatment of pneumonia, the authors do not believe that conclusions may yet be drawn as to their relative value in its routine treatment.

Hypopituitarism, Chloride Excretion and Adrenocortical Function.—According to Stephens, six of seven patients with clinical hypopituitarism, when studied under standard conditions of salt depletion, showed increased concentrations of chloride in the urine similar to that which has been found to be characteristic of adrenocortical insufficiency. Symptoms suggesting those of addisonian crisis developed in four of the six patients. These symptoms were promptly relieved by the intravenous administration of sodium chloride, dextrose and adrenal cortex extract. Symptoms did not develop in two patients and chloride excretion was favorably modified after the administration of sodium chloride and adrenal cortex extract. One patient experienced striking clinical improvement during the administration of sodium chloride and adrenal cortex extract. These observations are interpreted as confirmatory evidence of the occurrence of chronic adrenocortical insufficiency in clinical hypopituitarism, presumably secondary to withdrawal of the adrenotropic anterior pituitary principle.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

43: 1-152 (Jan.) 1940. Partial Index

Wide Field Roentgen Therapy: Report on Clinical Investigations, 1920-1938. S. G. Scott, London, England.—p. 1.
Combined Roentgen and Radium Treatment of Carcinoma of Cervix. R. Dresser, J. V. Meigs and J. C. Rude, Boston.—p. 17.
Roentgen Diagnosis and Therapy of Retropharyngeal Adenitis. R. R. Rathbone, Washington, D. C.—p. 25.
Roentgen Diagnosis of Dermoid Cysts of Ovary in Absence of Calcification. S. A. Robins and G. White, Boston.—p. 30.
Fluorography: Photography of Fluorescent Image. I. S. Hirsch, New York.—p. 45.
Effect of Peptic Ulcer in Cholecystography. M. Feldman, Baltimore.—p. 58.
Congenital Synostosis of Cervicothoracic Vertebrae (The Klippel-Feil Syndrome). A. M. Rechtman and M. T. Horwitz, Philadelphia.—p. 66.
Osteopetrosis Associated with Hodgkin's Disease: Review of Literature and Report of Case. H. Herscher and J. J. Stein, Hines, Ill.—p. 74.
Studies of Human Nervous and Related Tissue by Roentgen Ray Diffraction Method and Petrographic Microscope. L. Reynolds, K. E. Corrigan and Henrietta Hayden, Detroit.—p. 81.
Production of Radioactive Substances and Neutron Rays. F. N. D. Kurie, Bloomington, Ind.—p. 107.

American Review of Tuberculosis, New York

41: 1-142 (Jan.) 1940

Evaluation of Respiratory Function. W. K. Whitehead and A. T. Miller, Jr., Northville, Mich.—p. 1.
Clinical Studies in Asbestosis. M. J. Stone, Boston.—p. 12.
*Intrapleural Pneumonolysis: Management of Patient. H. F. Newton, Waltham, Mass.—p. 22.
Accidents and Complications of Artificial Pneumothorax. P. M. Mattill and F. L. Jennings, Oak Terrace, Minn.—p. 38.
Acute Abdomen During Pneumothorax Therapy. R. H. Bennett and B. Burbank, Brooklyn.—p. 50.
Purified Protein Derivative: Its Isolation from Old Tuberculin and Fractionation of Residue. Florence B. Seibert and Emma H. DuFour, Philadelphia.—p. 57.
Intoxication in Tuberculosis. H. J. Corper and M. L. Cohn, Denver.—p. 71.
*Chronic Nonspecific Pulmonary Disease: I. Radiographic Diagnosis of Bronchiectasis. P. M. Andrus, London, Ont.—p. 87.
Id.: II. Pathogenesis of Bronchiectasis. P. M. Andrus, London, Ont.—p. 99.
Id.: III. Classification. P. M. Andrus, London, Ont.—p. 104.

Intrapleural Pneumonolysis.—Newton treated 146 consecutive patients requiring intrapleural pneumonolysis. The number of pneumonolyses performed was 182. Consideration of a patient for the operation depends on the presence of an incomplete pneumothorax of from one to six months in which collapse and rest of the diseased lung is prevented by pleural adhesions. In 128 cases, or 87.6 per cent, there was evidence of probable healing of the lung after pneumonolysis. The author believes that the electrosurgical technic is preferable and safer in experienced hands than the galvanocautery method. The scope of operable adhesions may be widened by its use and risk of complications diminished. Multiple stage intrapleural pneumonolysis is wiser in serious risk cases. The risk of serious operative and postoperative complications in cases in which adhesions are of such size and attachment as to make the risk of damage to lung or serious hemorrhage probable contraindicates intrapleural pneumonolysis.

Chronic Bronchiectasis.—Andrus describes four roentgenologic "cardinal signs" of bronchiectasis: generalized increase in density of the pulmonary markings, ring shadows, displacement of organs and chronic pneumonia. He believes that the presence of any one of these signs warrants a suspicion of bronchiectasis. When two of these "cardinal signs" are well established, such suspicion is greatly enhanced. The presence of three or more of these shadow changes warrants a diagnosis of bronchiectasis, ranging from probable to presumptive or positive, according to the development of the shadows and the clinical associations.

Annals of Internal Medicine, Lancaster, Pa.

13: 1105-1284 (Jan.) 1940

*Parenteral Sulfapyridine: Intravenous Use of Sodium Sulfapyridine and Report of Clinical and Laboratory Observations on Use of Glucose-Sulfapyridine Solution. M. Finland, F. C. Lowell, W. C. Spring Jr. and F. H. L. Taylor, Boston.—p. 1105.
Treatment of Lobar Pneumonia with Sulfapyridine and Sodium Sulfapyridine: Effective Blood Levels. T. J. Abernethy, H. F. Dowling and C. R. Hartman, Washington, D. C.—p. 1121.
Experiences in Treatment of Lobar Pneumonia. L. D. Thompson, J. C. Edwards and C. L. Hoagland, St. Louis.—p. 1138.
*Studies in Peripheral Vascular Disease: I. Intravenous Calcium in Occlusive Vascular Disease. H. S. Weichsel, New York.—p. 1150.
Independent versus Interconnected Time Marking System Employed in Electrocardiographs. J. B. Wolffe, Philadelphia.—p. 1160.
Thrombosis of Abdominal Aorta: Report of Four Cases Showing Variability of Symptoms. H. C. Lueth, Evanston, Ill.—p. 1167.
Studies in Dystrophia Myotonica: IV. Myotonia: Its Nature and Occurrence. A. Ravin and J. J. Waring, Denver.—p. 1174.
*Cardiovascular Effects of Large Doses of Metrazol in Schizophrenia. E. Messinger and N. Moros, Northport, Long Island, N. Y.—p. 1184.
Actinomycosis: New Species, Pathogenic for Man. G. C. H. Franklin, Fort Leavenworth, Kan.—p. 1205.
Pathogenesis of Hemorrhage in Artificially Induced Fever. S. J. Wilson and C. A. Doan, Columbus, Ohio.—p. 1214.
Parasitology: Round Table Discussion. E. C. Faust, New Orleans.—p. 1230.

Parenteral Sulfapyridine.—Finland and his associates prepared a dextrose-sulfapyridine solution for intravenous and subcutaneous injection. Eighteen patients were suffering from severe acute infections (pneumonia, meningitis, peritonitis, gonorrheal (?) arthritis) and the injections were given as a preliminary to oral sulfapyridine therapy. In two cases the injections were followed by specific serum therapy. The three patients who were not severely ill were the subjects of comparative studies on sulfapyridine and related compounds given by various routes. Sterile physiologic solution of sodium

chloride was used as the diluent. The amounts of the drug in each injection varied from 2.5 to 5 Gm. It was usually given slowly diluted to 1 per cent. The drug appeared within fifteen minutes in the urine. In the spinal fluids the concentration of the drug up to four hours after an injection was only one half or less that of the blood. The drug appeared rapidly in the stomach contents and was found there in higher concentrations than in the blood. Reactions from the injections were usually of minor importance considering the severity of the cases treated. In one case convulsions during the injection were rapidly followed by collapse and death, and in a second the injections may have contributed to the early onset of pulmonary edema. None of the patients with typical pneumonia showed definite improvement before oral sulfapyridine therapy was begun. The observations suggested to the authors that the effects of the dextrose solution were not as striking as or equivalent to those from corresponding amounts of sulfapyridine or of its sodium salt orally.

Intravenous Calcium in Occlusive Vascular Disease.—Weichsel injected calcium salts intravenously in cases of occlusive vascular disease. Recordings of pulse amplitude before and after injection were made in thirty of these with the Tycos recording oscillometer. In other cases, observations were made with the Pachon-Boulitte oscillometer. Both instruments showed an appreciable augmentation of the pulse amplitude in a considerable number of cases. The most striking phenomena, however, were relief from pain and increased ability on the part of the patients to walk. This needed explanation. The general flush and the feeling of warmth after the infusion of calcium salts lead one to believe that superficial vessels are being dilated. This impression is strengthened by the sensation of heat in an extremity that previously was cold for months or years because of deficient circulation. The author states that his observations tend to support the view that calcium stimulates the parasympathetic. The author has not seen either thrombosis or severe toxic response in thousands of injections, other than the flush or a slight nausea. Clinically, relief from pain lasts about twenty-four hours, later becoming semipermanent as treatment is continued. Night cramps and rest pain have been consistently relieved. Previously cold extremities become warm again. Patients generally return of their own volition for treatment after the first course is over. It is not uncommon for patients to remain relieved for as much as two years at a time. Calcium gluconate was used at first. The method now used is to add to an infusion of physiologic solution of sodium chloride the required amount of a 50 per cent stock sterile solution of calcium chloride. This is done after the injection is started with the physiologic solution of sodium chloride to be sure that the venipuncture is clean. A 300 cc. pyrex arsphenamine tube is used, and glass Luer slip connectors show by reflux of blood when the vein has been entered. Because of the synergism of calcium and digitalis, no digitalized patient should be given calcium. Death may result. All patients received 2 Gm. of calcium chloride once a week for twelve weeks. Claudication distances were materially and consistently increased after treatment. Ulcers were healed with this treatment alone.

Cardiovascular Effects of Large Doses of Metrazol.—Messinger and Moros list changes in the physical signs, blood pressure and electrocardiograms of fourteen men receiving metrazol alone as well as metrazol during the course of insulin hypoglycemia. The metrazol injections as a rule induced a transitory mild to moderate acceleration of cardiac rate (from ten to thirty beats per minute) and at times transitory cardiac irregularities most often of the type of auricular extrasystoles, and sinus arrhythmia, with ventricular extrasystoles more rarely. No instance of auricular fibrillation, although this has been reported by another investigator (Hadorn), has been observed by the authors. Patients who are "sensitive" or "have been sensitized" (by previous treatment with insulin) may show temporary signs of aortic dilatation phenomena, analogous to the known effects of a mild hyperadrenalinemia. Except in such "sensitized" patients, who had electrocardiograms possibly indicating a slight tendency toward diminished coronary oxygenation, the electrocardiograms after convulsions invariably indicated either no change or improved coronary oxygenation, associated with the more vigorous heart action.

Archives of Ophthalmology, Chicago

23: 1-236 (Jan.) 1940

American Ophthalmological Society: Retrospect of Seventy-Five Years. H. Friedenwald, Baltimore.—p. 1.
Exophthalmos, Without Pulsation, Due to Arteriovenous Aneurysm: Report of Case. S. S. McNair, Jackson, Miss.—p. 22.
Investigation of Experimental Cataracts in Albino Rat: Clinical Implications. A. M. Yudkin and Harriet A. Geer, New Haven, Conn.—p. 28.
Course in Certain Cases of Atrophy of Optic Nerve with Cupping and Low Tension. A. Knapp, New York.—p. 41.
*Interstitial Keratitis Caused by Specific Sensitivity to Ingested Foods. A. M. Dean, F. W. Dean and G. R. McCutchan, Council Bluffs, Iowa.—p. 48.
New Method of Applying Radon Seeds for Ocular Disorders. J. Waldman, Philadelphia.—p. 55.
Certain Retinopathies Due to Changes in Lamina Vitrea. S. R. Gifford and Beulah Cushman, Chicago.—p. 60.
*Role of States of Anxiety in Pathogenesis of Primary Glaucoma. M. J. Schoenberg, New York.—p. 76.
Psychosomatic Interrelations: Their Therapeutic Implications in Glaucoma. M. J. Schoenberg, New York.—p. 91.
The Leland Refractor: Method for Refraction Under Binocular Conditions. S. van Wien, Chicago.—p. 104.
Ocular Leprosy in the United States: Study of 350 Cases. J. J. Prendergast, St. Paul.—p. 112.
Exfoliation of Lens Capsule (Glaucoma Capsularis): Forty Cases of Exfoliation. R. Irvine, Los Angeles.—p. 138.
Method of Ultra Close-Up Photography in Ophthalmology. R. Irvine and R. L. Stimson, Los Angeles.—p. 161.
Visual Hallucinations and Their Neuro-Optical Correlates. L. M. Weinberger and F. C. Grant, Philadelphia.—p. 166.

Interstitial Keratitis and Food Allergy.—The Deans and McCutchan encountered six persons with interstitial keratitis who presented a characteristic appearance and who were relieved by removing certain foods from their diet. In all six cases the ingestion of at least one food would reproduce clinical symptoms after its withdrawal from the diet resulted in relief of clinical symptoms. The disease commences with slight irritation, mild discomfort, lacrimation and redness. These symptoms continue for weeks, often with remissions, but generally become more and more severe. They fail to respond to local treatment. After the symptoms have continued for some weeks and the process has involved the central portion of the cornea, vision becomes slightly hazy. The slit lamp shows faint, irregular, gray or yellowish gray interstitial opacities in the cornea, at first localized in one quadrant. Loops of scleral vessels soon develop deep in the corneal stroma toward the lesions. As the disease progresses, the opacities increase in number and in density, extending to all portions of the cornea. Scar tissue invades the stromal layers. Lesions rarely break through the anterior epithelium of the cornea to produce ulceration. This condition is similar to that of "recurrent vascular keratitis of unknown origin" (Doggart, 1931). Specific treatment is the removal from the diet of all offending foods, which are ascertained by history, elimination or cutaneous test. When this is done the ciliary injection and pain disappear in forty-eight hours. Opacities which are not escharotic gradually lessen in depth; otherwise the process is arrested. The vessels in the corneal stroma continue to function for a long time, although their diameters seem to be lessened. If the sensitizing food is again ingested after the process is arrested, symptoms reappear within twenty-four hours. The disease was reproduced only twice, as no patient would submit to further experimentation.

Primary Glaucoma.—Schoenberg contends that the eyes of some patients with primary glaucoma register states of anxiety just as those of other persons with glaucoma record changes in weather, poor illumination, poorly balanced diets, cardiovascular disturbances, acute febrile diseases and sudden increases in blood pressure. States of anxiety cause a widespread and more or less intense disturbance of the physiologic processes throughout the entire body. The ocular disturbances occurring during acute states of emotion are increase in the size of the pupils, enlargement of the interpalpebral fissure, bulging of the eyes, hypersecretion of the lacrimal glands and spasm of the retinal arteries (in older patients). Most of these manifestations are similar to those appearing after a sudden and large increase of epinephrine in the blood stream. It is well known that under conditions of emotional stress there is a marked increase of epinephrine-like substances in the blood and tissues. The autonomic nervous system and the endocrine glands reach every organ and tissue in the body. Evidence shows that the two parts of the autonomic nervous system

(the sympathetic and parasympathetic) are out of balance within the glaucomatous eyes and that states of anxiety have a different effect on glaucomatous eyes than on normal eyes. The following are some evidences for the first statement: 1. The power of accommodation is diminished and there is a tendency for the pupils to be somewhat dilated (underaction of the parasympathetic system). 2. Epinephrine hydrochloride dilates the pupil of a glaucomatous eye when instilled in the fornix but it does not do so in a normal eye. 3. The pupils of glaucomatous eyes usually need a stronger solution of pilocarpine for contraction (showing that the parasympathetic innervation of the sphincter pupillae is hypotonic). 4. Atropine in the usual doses increases appreciably the intra-ocular pressure of the glaucomatous eye and not of the normal eye. 5. Pilocarpine and physostigmine salicylate reduce the ocular tension in certain glaucomatous eyes, while the tension in normal eyes remains unaffected. 6. Drugs with a specific action on the autonomic nervous system also have a specific action on glaucomatous eyes. 7. Emotional upsets, febrile diseases and sleeplessness have a strong unbalancing influence on the function of the autonomic nervous system and also tend to increase the ocular tension. Proving the effect of states of anxiety on glaucomatous eyes, the following facts are cited: 1. The author's patients presented such evidence. 2. The ophthalmologic literature contains reports (vague and meager, though they are) of attacks of acute glaucoma following violent emotions. 3. In some cases of glaucoma a recrudescence of the condition is attributable to states of anxiety. 4. Many patients, when permitted and encouraged to talk, have described minor or major attacks of glaucomatous crises during or following states of anxiety. 5. There is no case on record of an attack of glaucoma in a normal eye following an emotional upset.

Archives of Otolaryngology, Chicago

31: 1-230 (Jan.) 1940

Vocal and Verbal Syndromes: Their Rhinolaryngologic Significance. J. S. Greene, New York.—p. 1.
Defects in Speech in Relation to Defects in Hearing. I. W. Voorhees, New York.—p. 7.
Simple Treatment for Defects of Singing and of Speaking Voice. W. Mithoefer, Cincinnati.—p. 16.
Voice After Direct Laryngoscopic Operations, Laryngofissure and Laryngectomy. C. L. Jackson, Philadelphia.—p. 23.
Defective Speech in Relation to Defective Hearing. M. A. Goldstein, St. Louis.—p. 38.
Relation of Allergy and Tonsillectomy in Children: Incidence of Respiratory Allergy in Cases of Routine Tonsillectomy. F. K. Hansel, St. Louis, and C. S. Chang, Peiping, China.—p. 45.
Alterations in Nasal Function Due to Anatomic Variations of Nares. A. A. Cinelli, New York.—p. 53.
Method for Reconstruction of Postauricular Defects. G. R. O'Brien, Brooklyn, and W. B. Slaughter, Omaha.—p. 65.
*Nature of Vitamin B and Its Components, with Special Reference to Nerve Deafness. C. A. Veasey Jr., Spokane, Wash.—p. 74.
Reconstruction After Radical Operation for Osteomyelitis of Frontal Bone: Experience in Eighteen Cases. V. H. Kazanjian and J. M. Converse, Boston.—p. 94.
Galvanic Reaction in Guinea Pigs: III. Reaction Following Section of Eighth Nerve. A. R. Buchanan and Laura D. Ladd, University, Miss.—p. 113.
Id.: IV. Reaction in Animals with Unilateral Lesions in Brain Stem. A. R. Buchanan, University, Miss.—p. 120.
*Argyria Resulting from Intranasal Medication: Clinical and Experimental Study. B. L. Bryant, Los Angeles.—p. 127.
Interstitial Emphysema of Lung with Spontaneous Pneumothorax and Subcutaneous Emphysema: Demonstration of Air in Septums of Human Lung. Vera B. Dolgopol and M. E. Stern, New York.—p. 140.
Benign Tumors of Bronchi, with Special Reference to Vascular Adenoma. H. I. Laff, Denver.—p. 148.
Diplacusis: Localizing Symptom of Disease of Organ of Corti: Theoretical Considerations, Clinical Observations and Practical Application. G. E. Shambaugh Jr., Chicago.—p. 160.

Vitamin B and Nerve Deafness.—The possible relation between deficiency of vitamin B and at least some forms of nerve deafness, pointed out by Selfridge, prompted Veasey to review the literature (up to 1938) on vitamin B, from which he finds that a vitamin B deficient person may have symptoms referable to the nervous, vascular or gastrointestinal system, the endocrine glands or the organs of special sense. The author cites seven cases of impaired hearing for the treatment of which he used vitamin B. The results suggest that there is a possibility of helping some persons by this means but that at the present time there are no means of selecting the patients who may be improved.

Argyria from Intranasal Medication.—Bryant cautions that argyria can result from the use of silver-containing intranasal medication. A 100 per cent increase in such cases reported occurred during a recent period of five years. Walsh and Cannon observed that all their rabbits treated intranasally with 5 per cent mild protein silver and neosilvol showed changes in the lungs, consisting of edema, necrosis, desquamation of septal cells and bronchopneumonic lesions. These changes were more marked when the animal had the snuffles. When to these observations is added the real danger of the production of argyrosis, it seems that a clear case against the intranasal use of silver preparations has been established. Measures should be taken to warn the public of the danger of the production of argyria by long-continued self medication with silver preparations.

Archives of Pathology, Chicago

29: 1-152 (Jan.) 1940

Lymphoid Tumors in Mice Receiving Estrogens. W. U. Gardner, A. Kirschbaum and L. C. Strong, New Haven, Conn.—p. 1.
Production of Internal Tumors with Chemical Carcinogens. H. P. Rusch, C. A. Baumann, Madison, Wis., and G. L. Maison, St. Louis.—p. 8.
Disease of Liver in Hyperthyroidism. J. M. Shaffer, New York.—p. 20.
Chemistry of Atherosclerosis: I. Lipid and Calcium Content of Intima and of Mediums of Aorta With and Without Atherosclerosis. S. Weinhouse and E. F. Hirsch, Chicago.—p. 31.
Morphogenesis of Extraskeletal Osteogenic Sarcoma and Pseudo-Osteosarcoma. J. S. Binkley and F. W. Stewart, New York.—p. 42.
Blood Pressure in Experimental Nephritis Produced by Injection of Nephrotoxic Serum. C. F. Kay, Baltimore.—p. 57.
*Pathologic and Histologic Changes Following Oral Administration of Sulfapyridine, with Short Note on Sodium Sulfapyridine. W. Antopol, Newark, N. J., and H. Robinson, Rahway, N. J.—p. 67.
Plastic Studies in Abnormal Renal Architecture: V. Parenchyma: Alterations in Experimental Hydronephrosis. K. C. Strong, Brooklyn.—p. 77.

Microscopic Changes After Sulfapyridine.—Antopol and Robinson observed concretions in certain animals after the administration of a large single dose of sulfapyridine, but the results were more striking after repeated doses on successive days. From their studies the authors cannot conclude whether the precipitation of the acetylated sulfapyridine in the urine is always primary or whether it is dependent on initial degenerative changes in the renal parenchyma or on a combination of the two. With the oral administration of sodium sulfapyridine, smaller doses were necessary for urolith formation in the rat, rabbit and monkey. Histologically the degenerative changes in the kidney were more pronounced than those from sulfapyridine. When the drug was administered rectally, a hemorrhagic reaction with some necrosis of the mucosa was frequently encountered.

Archives of Physical Therapy, Chicago

21: 1-64 (Jan.) 1940

Benefits of Exercise. H. G. Hadley, Washington, D. C.—p. 5.
Mecholyl and Histamine Effects on Peripheral Circulation and Relief of Arthritic Pain. A. Cohen and H. Rosen, Philadelphia.—p. 12.
Modified Method for Application of Short Wave Diathermy. Martha Brunner and F. H. Krusen, Rochester, Minn.—p. 16.
After-Care of Fractures, with Special Reference to Delayed Union and Sudeck's Atrophy. H. H. Jordan, New York.—p. 25.
Irrigation of Colon. J. S. Hibben, Pasadena, Calif.—p. 33.
Physical Therapy Principles of Periarthritis of Shoulder. J. L. Kendrick, Cleveland.—p. 41.

Connecticut State Medical Journal, Hartford

4: 1-58 (Jan.) 1940

Industrial Poisons—Physiologic and Clinical Considerations. G. H. Gehrmann, Wilmington, Del.—p. 3.
Legg-Perthes Disease, with Particular Regard to Treatment. M. M. Pike, Hartford.—p. 5.
Present Trend in Treatment of Progressive Deafness. N. Canfield, New Haven.—p. 12.
Treatment Procedures for Cancer of Uterus Advised by the Connecticut Tumor Clinics. J. R. Miller, Hartford.—p. 16.
Dysmenorrhea. C. E. Johnson, New Haven.—p. 20.
Further Studies in Therapy of Acute Anterior Poliomyelitis. C. L. Thenebe and M. S. Hirshberg, Hartford.—p. 25.

Delaware State Medical Journal, Wilmington

12: 1-18 (Jan.) 1940

The Work of the Haskell Laboratory of Industrial Toxicology. J. H. Foulger, Wilmington.—p. 1.
Cancer of Skin. I. Zugerman, Philadelphia.—p. 4.

Illinois Medical Journal, Chicago

77: 1-96 (Jan.) 1940

Radium Treatment of Cancer of Cervix Uteri. F. E. Simpson, collaborators J. E. Breed and J. S. Thompson, Chicago.—p. 23.
Kraurosis and Leukoplakia of Vulva. J. I. Brewer, Chicago.—p. 26.
Diagnosis of Backache. S. J. Lang, Evanston.—p. 32.
Surgical Technic for Repair of Extensive Vesicovaginal Fistula, Following Total Hysterectomy. E. Jonas and A. Dick, Chicago.—p. 35.
Upper Respiratory Revenge of the Allergic Child. I. H. Tumpeer, Chicago.—p. 37.
Control of Syphilis in Pregnant Women. H. M. Soloway, Springfield.—p. 44.
Laboratory Studies in Huntington's Chorea. E. I. Falstein and T. T. Stone, Chicago.—p. 47.
*Use of Picrotoxin in Acute Barbiturate Poisoning. C. W. Eisele and H. W. Brosin, Chicago.—p. 49.
Tularemia and Its Treatment with Serum. A. J. Toman, Chicago.—p. 53.
Treatment of Hemorrhage from Gastrointestinal Tract. A. Brunschwig, Chicago.—p. 55.
Pathology and Treatment of Otitic and Rhinogenic Meningitis. H. Brunner, Chicago.—p. 57.
Immunizations. R. C. Farrier, East St. Louis.—p. 63.
Chorea Gravidarum: Report of Case Recurring in Three Successive Pregnancies; Klippel-Feil Syndrome in the Last Newborn. Yetta Scheftel, Chicago.—p. 67.
The Doctor Looks at Hospitalization Insurance. T. J. Byrne Jr., Chicago.—p. 71.
School Health in Illinois. H. H. Boyle, S. C. Henn, Chicago; J. E. Carey, Joliet, and Alvah L. Newcomb, Wilmette.—p. 76.
False Positive Blood Serologic Tests for Syphilis Following Vaccination for Variola. R. D. Barnard, Chicago.—p. 78.
Occupational Dermatoses Under the Illinois Workmen's Occupational Diseases Act. H. R. Foerster, Milwaukee.—p. 79.
Vertigo as Primary Manifestation in Anxiety Neurosis. Adelaide M. Johnson, Chicago.—p. 86.

Picrotoxin for Acute Barbiturate Poisoning.—Eisele and Brosin report two cases of barbiturate poisoning treated with picrotoxin. Although the amounts of barbiturate ingested were not massive, the lapse of time between the ingestion of the barbiturate and its discovery was ample for complete absorption of the drug to take place. The symptoms (deep coma, absence of reflexes, flaccidity of musculature and cyanosis) pointed to a serious poisoning in both cases. In both cases, picrotoxin repeatedly produced definite awakening phenomena which subsided on withdrawal of the drug; therefore it, with other supportive measures, was continued until recovery ensued. A complete abortion of a three months pregnancy occurred in the first case shortly after the onset of picrotoxin therapy. It is debatable whether the abortion resulted from the treatment or from the barbiturate poisoning itself. However, the experimental work of Kunisho suggests that the picrotoxin may have been the cause of the abortion; Kunisho found that small doses of picrotoxin always stimulated the uterus of the rabbit. Bronchopneumonia is a frequent complication of barbiturate poisoning. Picrotoxin, by shortening the period of coma, should eliminate or mitigate this complication in many instances.

Iowa State Medical Society Journal, Des Moines

30: 1-44 (Jan.) 1940

Diagnosis and Treatment of Vitamin Deficiencies. L. F. Barker, Baltimore.—p. 1.
Treatment of Varicose Veins at the University Hospitals. G. O. Dean, Iowa City.—p. 6.
Operation for Ununited Fracture of Neck of Femur. L. J. Miltner, Davenport.—p. 9.
Puerperal Inversion of Uterus. E. J. Butterfield, Dallas Center.—p. 12.
Roentgen Examination of Pelvis in Pregnancy. A. E. Perley, Waterloo.—p. 14.

Johns Hopkins Hospital Bulletin, Baltimore

66: 1-70 (Jan.) 1940

Metabolic Studies and Therapy in Case of Nephrocalcinosis with Rickets and Dwarfism. F. Albright, W. V. Consolazio, F. S. Coombs, H. W. Sulkowitch and J. H. Talbott, Boston.—p. 7.
*Medical and Surgical Treatment of Severe Bronchial Asthma. E. L. Keeney, Baltimore.—p. 34.
Action of Quinine Methochloride on Neuromuscular Transmission. A. M. Harvey, London, England.—p. 52.
Chromosomal Nature of Nucleoli. W. H. Lewis, Baltimore.—p. 60.

Treatment of Severe Bronchial Asthma.—Keeney believes that the treatment of patients with severe bronchial asthma is simplified by classifying the disease into three groups: severe acute bronchial asthma, intractable asthma (status asthmaticus) and severe chronic bronchial asthma. Patients with severe acute asthma should first receive from 0.3 to 0.5 cc. of epinephrine hydrochloride (1:1,000). Such a dose should be repeated every fifteen minutes until four doses have been administered or until relief is apparent. To prevent recurrence of asthma, an intramuscular injection of from 0.75 to 1 cc. of epinephrine-in-oil should follow. One of the barbituric acid derivatives may be given as a sedative. An injection of from 0.3 to 0.5 cc. of Schlesinger's solution (0.000125 Gm. of scopolamine hydrochloride, 0.01 Gm. of morphine hydrochloride and 0.015 Gm. of ethylmorphine hydrochloride) is permissible if the patient is badly in need of rest. Epinephrine therapy is best for hypertensive patients with severe asthma. Patients with intractable asthma fail to obtain relief from the usual epinephrine preparations. They are not "epinephrine fast." The intravenous injection of 100 cc. of a 50 per cent solution of sucrose to which has been added 0.5 cc. of epinephrine hydrochloride (1:1,000) or the injection of 0.48 Gm. of aminophylline diluted in 10 cc. of physiologic solution of sodium chloride may give temporary relief. The continuous or intermittent inhalation of an atmosphere of 100 per cent oxygen or of 80 per cent helium and 20 per cent oxygen is a physiologically sound therapeutic measure. To improve the cardiac action, digitalization should be carried out in from twenty-four to forty-eight hours and then a maintenance dose should be provided until the patient is free from asthmatic symptoms. From 60 to 120 cc. of a mixture of equal parts of ether and olive oil may be instilled rectally to induce sleep. Patients with severe chronic bronchial asthma require frequent daily and nocturnal injections of epinephrine hydrochloride (1:1,000). Epinephrine-in-oil intramuscularly requires fewer injections and is followed by longer symptom-free periods. The value of intratracheal injections of iodized oils is generally overrated.

Journal of Allergy, St. Louis

11: 109-224 (Jan.) 1940

Antigenic Studies by Dale Test: II. Antigenicity of House Dust. S. F. Hampton and A. Stull, New York.—p. 109.
Ionic Transmission Method for Testing with Allergens. L. O. Dutton, El Paso, Texas.—p. 130.
Significance of Cottonseed Sensitiveness. H. S. Bernton, J. R. Spies and H. Stevens, Washington, D. C.—p. 138.
Intrinsic Asthma. F. M. Rackemann, Boston.—p. 147.
Allergic Syndromes in Absence of Allergens: Presidential Address. H. L. Alexander, St. Louis.—p. 163.
Immunologically Altered Skin Reactivity in Nonatopic Persons. L. W. Hill, Boston.—p. 170.

Journal of Bone and Joint Surgery, Boston

22: 1-260 (Jan.) 1940. Partial Index

Interpretation of Sciatic Radiation and Syndrome of Low Back Pain. A. Steindler, Iowa City.—p. 28.
*Tetanus and Lesions of Spine in Childhood. H. F. Dietrich, Rella G. Karshner and S. F. Stewart, Los Angeles.—p. 43.
*Clay Shoveler's Fracture. R. D. M. Hall, Perth, Western Australia.—p. 63.
Surgical Correction of Talipes Cavus Deformities. Alvia Brockway, Los Angeles.—p. 81.
Ununited Fracture of Neck of Femur Treated by Aid of Bone Graft. M. S. Henderson, Rochester, Minn.—p. 97.
Dislocation of Elbow and Its Complications: Simple Technic for Excision of Elbow. M. G. Kini, Vizagapatam, South India.—p. 107.
Surgical Treatment of Acute Subacromial Bursitis. W. P. Bartels, Hempstead, N. Y.—p. 120.
Lock-Bolt Fixation of Fractures of Femoral Neck and of Intertrochanteric Fractures. E. W. Cleary, Burlingame, Calif., and G. M. Morrison, San Mateo, Calif.—p. 125.
Prevention of Deformity of Spine by Vertebral Fusion. S. L. Haas, San Francisco.—p. 157.
Gonorrheal Arthritis: Proposed Plan of Sulfanilamide Therapy. O. S. Culp and M. C. Cobey, Baltimore.—p. 185.

Tetanus and Lesions of Spine in Childhood.—Dietrich and his colleagues state that during the last eighteen years at the Children's Hospital the mortality from tetanus has dropped from 80 to 8 per cent. Of the surviving patients who have been examined, 69 per cent showed lesions in the thoracic spine. During the years 1921 to 1933 the plan of treatment was débridement and the injection of large amounts (from 15,000 to 100,000 units) of tetanus antitoxin locally, intramuscularly, intravenously and intrathecally. Of the fifteen patients in this group twelve died, eleven deaths occurring within fourteen hours of the institution of treatment. In every instance the disease picture was changed from one of tetanus, with relatively low temperature and pulse rate and clear sensorium, to a condition resembling grave bulbar involvement. The three patients who recovered showed similar but less serious reactions. After short periods of grave uncertainty the reaction subsided suddenly but the tetanus improved more slowly. One of these patients had such severe reactions following each intraspinal injection of antitoxin that the outcome after each injection was questionable. Post-

mortem studies of four of the patients who died suddenly showed marked medullary and cerebral edema and mild to moderate inflammatory changes. Thus it appears that the hypersensitive central nervous system of the patient with tetanus cannot withstand the added insult of a sterile meningitis or increasing intracranial pressure. Only one of the thirteen patients treated from 1933 to the present time died. This death occurred three hours after the first administration of 20,000 units of antitoxin intravenously. Eight of these twelve patients were not given intrathecal injections of serum. The remaining four had severe reactions after the administration of serum intraspinally, but somehow they survived a few critical hours. The temperature and pulse rate then fell rapidly, although tetanic activity continued. The authors feel that these dramatic elevations and subsequent rapid falls of temperature and pulse rate were entirely dissociated from the course of the tetanus. The reactions always occurred after treatment and subsided long before the tendency to severe tetanic convulsions had disappeared. Two of the surviving patients who were given intravenous but no intrathecal injection of serum showed similar severe reactions, so it is impossible to ascribe all of these "bulbar crises" to sterile meningitis. In one of the latter cases, when death seemed imminent, hypertonic sucrose solution was given intravenously in the belief that the reaction was due to cerebral edema. A dramatic improvement followed within a few hours. Four of the surviving patients who received only local and intramuscular injections of serum were, with one exception, the only patients who did not have a frightening reaction following treatment. Every patient in this group received large doses of sedatives: amytal, avertin with amylene hydrate and, more recently, seconal (a barbital preparation). The authors conclude that between 1921 and 1933 something was done that precipitated critical reactions and death. In every instance reactions followed either intrathecal or intravenous administration of antitoxin. Therefore it seems that the intrathecal administration of tetanus antitoxin for juvenile tetanus should be discontinued because of the severe reactions (sterile meningitis, cerebral edema and death) which follow its use. It is a frequent cause of death of children so treated. With the increasing recovery rate there has been a marked increase of vertebral deformities. The possibility of preventing some of these by early and vigorous sedation suggests itself. By the time anything can be done for the patient with a vertebral deformity, repair has occurred and the deformity remains. As the condition is practically symptomless, treatment has been found useless.

Clay Shoveler's Fracture.—Hall reports thirteen cases of occupational injury which he terms "clay shoveler's fracture." The history of the accident is the same in practically all cases. The laborer (digging drains in clay soil) throws up a shovelful of clay usually from 10 to 15 feet, the clay sticks to the shovel and the worker feels a sudden stab of pain and sometimes hears a crack somewhere between the shoulders and is unable to continue working. It is suggested that the causation of clay shoveler's fracture is closely associated with the origins and actions of the trapezius (middle portion), the rhomboideus major and the rhomboideus minor; the serratus posterior superior acts merely as an accessory to these muscles, for when the worker is in the act of throwing this muscle is probably in full contraction, thus helping to fix the chest. The three possible mechanisms of this fracture are direct muscle violence, reflex muscle contraction and whiplike pull transmitted through the supraspinal ligaments. Early removal of the detached fragments is doubtless the treatment of choice.

Journal of Immunology, Baltimore

38: 1-80 (Jan.) 1940

Studies on Immunization of Rabbits with Formalinized Vaccine Virus. A. J. Weil and L. S. Gall, Pearl River, N. Y.—p. 1.
Comparison of Acquired Immunity and Species Resistance Based on Cultivation of Virus III in Vitro. J. M. Pearce, Princeton, N. J.—p. 9.
Immunologic Studies of Pollinosis: I. Presence of Two Antibodies Related to Same Pollen-Antigen in Serum of Treated Hay Fever Patients. Mary Hewitt Loveless, New York.—p. 25.
Natural Transmission of Immunity Against Trypanosoma Duttoni from Mother Mice to Their Young. J. T. Culbertson, New York.—p. 51.
Synergistic Effect of Paraffin Oil Combined with Heat Killed Tubercle Bacilli. J. Freund, J. Casals-Ariet and Dorothy Schaefer Genghof, New York.—p. 67.

Journal of Nutrition, Philadelphia

19: 1-104 (Jan.) 1940. Partial Index

Adequacy of a Milk Diet for the Rat. L. R. Richardson and A. G. Hogan, Columbia, Mo.—p. 13.
Prevention of Hyperplasia in Forestomach Epithelium of Rats Fed White Flour. G. R. Sharpless, Detroit.—p. 31.
State of Vitamin A in Liver of Rat After Feeding Various Forms of Vitamin. E. L. Gray, K. C. D. Hickman and Elizabeth F. Brown, Rochester, N. Y.—p. 39.
Quantitative Requirements of Components of Vitamin B Complex for Lactation and Growth of Nursing Young of Albino Rat. B. Sure, with technical assistance of Alethea Beach, Fayetteville, Ark.—p. 57.
*Influence of Nitrogen Content of Diet on Calory Balances of Preschool Children. Jean E. Hawks, Jeanne M. Voorhees, Merle M. Bray and Marie Dye, East Lansing, Mich.—p. 77.

Influence of Nitrogen Content of Diet on Calory Balances.—Hawks and her associates observed five preschool children serving as subjects for two long-time balance experiments. In each experiment they received two diets, the first of which contained daily 3 Gm. and the second 4 Gm. of protein per kilogram of body weight. The increase in the protein content of the diets did not change the constant level of calory utilization. The children in each experiment reacted in the same manner, although there were slight differences in the results of the two experiments. The period to period variations for excretory values remained constant on the two diets and the absorption and retention figures varied in the same manner and to the same degree as the intake values. The change from the diet containing 3 Gm. to the one containing 4 Gm. of protein affected the calory balance as follows: 1. It increased the nitrogen content of the excreta, thus increasing the actual number of calories eliminated. 2. It increased the average proportion of the intake calories eliminated from 7.3 to 12 per cent. Thus, subtracting 10 per cent from the intake values to care for excretory losses does not always give accurate results. 3. It reduced the actual number, as well as the percentage, of the intake calories available for body needs, but at the same time it produced greater weight gains in the children.

Journal of Urology, Baltimore

43: 1-248 (Jan.) 1940. Partial Index

Renal Digestive Reflex. E. Smith and L. Orkin, Montreal.—p. 1.
*Silent Nephroma. H. W. Ostrum and J. S. Fetter, Philadelphia.—p. 39.
Ureteropelvic Anastomosis Following Avulsion. A. Hyman and S. F. Wilhelm, New York.—p. 52.
Retroperitoneal Lipofibrosarcoma in Child. H. L. Kretschmer, Chicago.—p. 61.
Wilms Tumor: Report of Three Cases and a Possible Fourth One in Same Family. L. A. Maslow, Chicago.—p. 75.
Further Observations on Use of Insulin-Free Pancreatic Tissue Extract as Aid in Cystoscopic Treatment of Impacted Ureteral Calculi and Spastic Occlusion of Ureter. J. A. Lazarus, New York.—p. 102.
Metastatic Abscess of Prostate Gland. J. Schwartz, New York.—p. 108.
Urethral Resistance in Relation to Vesical Activity. O. R. Langworthy, J. E. Drew and S. A. Vest, Baltimore.—p. 123.
Hydromechanics of Calix Renalis. P. A. Narath, New York.—p. 145.
Conservative Surgery in Management of Hydronephrosis. E. H. Fite, Muskogee, Okla.—p. 177.
Physiology of Bladder. D. K. Rose, St. Louis.—p. 190.
Granular Urethritis in Women. H. M. Spence, Dallas, Texas.—p. 199.
Cryptorchidism: Theory to Explain Its Etiology: Modifications in Surgical Technic: Preliminary Report. N. S. Moore and S. M. Tapper, St. Louis.—p. 204.
Calcium Urolithiasis: Role of Calcium Metabolism in Pathogenesis and Treatment of Calcium Urolithiasis. R. H. Flocks, Iowa City.—p. 214.
Female Pseudohermaphroditism. C. K. Smith and A. L. Stockwell, Kansas City, Mo.—p. 234.
Causes of Dysuria After Prostatic Surgery. R. E. Van Duzen, Dallas, Texas.—p. 245.

Silent Nephroma.—Ostrum and Fetter use the term silent nephroma for a group of far advanced malignant renal neoplasms with extensive metastases which, because of the site of metastases and the absence of urinary signs and symptoms, lead clinicians to suspect structures other than the kidneys as the possible source of disease. They encountered twenty-one such cases in eight years. In all the cases the chief complaints were referred not to the primary source of disease but to extensive metastases of other parts. Hematuria was observed in only three cases. Other complaints so overshadowed the bloody urine that the possible diagnosis of renal tumor was overlooked. Two of the patients presented themselves for medical attention because of painful knee joints. Examination of the chest of one of these patients revealed the presence of pleural effusion for which no explanation could be given and x-ray examination of the knee showed little involvement.

Repeated tapping of the chest was done and the knee was treated by physical therapeutic measures with some improvement. The patient returned at a later date with much increase in the pain and swelling of the knee and increased dyspnea. Repeated examination of the knee revealed an extensive osteolytic malignant lesion of the lower end of the femur. Necropsy showed a large hypernephroma of the right kidney with extensive metastases to the regional nodes, lungs, pleura and lower end of the right femur. Ten patients presented themselves with complaints of abdominal pain of various types and locations. Ten patients complained of various respiratory symptoms either as their cause of distress or in association with other more urgent symptoms. In seven instances the clinical history and physical signs were so suggestive that a diagnosis of advanced pulmonary tuberculosis was made. The authors state that the clinical triad of hematuria, pain and abdominal tumor is by no means essential to suggest disease of the urinary tract. If any one of these three manifestations is observed, a uroroentgenographic study is indicated, provided a definite diagnosis is not otherwise made. The occurrence of even a single instance of gross or microscopic hematuria should always be viewed with serious concern. When uroroentgenographic studies are performed, a conclusive opinion should not be formulated on the basis of a single examination. In such cases studies should be repeated at intervals.

Kansas Medical Society Journal, Topeka

41:1-44 (Jan.) 1940

Prognosis and Treatment of Streptococcic Meningitis. F. L. Menehan, Wichita.—p. 1.
Lead Encephalopathy. D. N. Medearis, Kansas City.—p. 5.
The Modern Concept of Diabetes. A. J. Revell, Pittsburg.—p. 8.
Combined Spinal Inhalation Anesthesia for Major Abdominal Operations. P. H. Lorhan and T. G. Orr, Kansas City.—p. 13.
Paralytic Adynamic Ileus. C. E. Partridge, Emporia.—p. 15.
Acquired Atresia of Vagina, Cesarean Section and Retained Lochia; Followed by Severe Late Eclampsia. G. Cowles and C. Robison, Wichita.—p. 17.

Military Surgeon, Washington, D. C.

86:1-96 (Jan.) 1940

The Medical Service with the Streamlined Division. T. E. Darby and P. E. Zuver.—p. 1.
New Regimental Medical Detachment. R. P. Williams.—p. 9.
Vincent's Infection. W. A. Rose.—p. 26.
Extracts from Notebook of a Medical Inspector. D. P. Penhallow.—p. 36.
Observations of a Medical Officer at the Recent Plattsburg Maneuvers. L. K. Gurjian.—p. 45.
*Treatment of Acute Gonorrheal Urethritis. C. E. Morse and F. G. Hirsch.—p. 53.
Sulfanilamide and Future Medical Military Statistics. F. G. Norbury.—p. 57.

Treatment of Acute Gonorrheal Urethritis.—To evaluate four different methods of treating acute anterior gonorrheal urethritis, Morse and Hirsch treated twenty-five cases by each method: sulfanilamide, sulfanilamide and anterior injections of silver protein, anterior irrigations with silver protein preceded by potassium permanganate irrigations, and daily anterior irrigations with a suspension of colloidal silver. All the patients were seen within five days from the onset of discharge before having any previous treatment and only initial infections were selected. The dosage of sulfanilamide of the first group of patients was 80 Gm. For the first two days 5.33 Gm. was given each day in four divided doses, 4 Gm. for the following two days and then 2.66 Gm. until the entire amount had been taken. The average duration of the disease in these cases was 39.1 days with extremes of from nine to ninety-three days. From the standpoint of complications, 56 per cent had none. Arthritis or epididymitis did not develop in any patient. Prostatitis developed in 8 per cent and the infection extended into the posterior urethra in 36 per cent. The average duration of the disease in the second group was fifty-one days. The extremes were sixteen and ninety-three days. There were no complications in 32 per cent of the cases, the infection in 52 per cent extended to the posterior urethra, epididymitis developed in 12 per cent and prostatitis developed in 4 per cent. The average duration of the disease of the third group of patients was fifty-one days with extremes of from thirty-eight to eighty-two days. The incidence of complications in this group was significantly higher. In only 30 per cent of the cases was the infection kept localized to the anterior urethra. In 20 per cent the only complication was a posterior urethritis, but in 50 per cent epididymitis or prostatitis developed. The average duration of the disease of the remaining twenty-five patients treated by daily anterior irrigations of a suspension of colloidal silver was 46.9 days, with extremes of eighteen and ninety-six days. Of these cases 64 per cent remained uncomplicated for the duration of the disease, in 24 per cent the disease extended into the posterior urethra and in 4 per cent prostatitis, epididymitis or arthritis developed. The authors' conclusions are that sulfanilamide without supplementary silver irrigations gave the most satisfactory results and that a colloidal suspension of metallic silver is preferable to protein silver preparations in cases in which the use of silver is desirable.

New England Journal of Medicine, Boston

222:41-78 (Jan. 11) 1940

*Cardio-Omentopexy in Treatment of Angina Pectoris: Report of Two Cases. J. W. Strieder, H. M. Clute and A. Grathiel, Boston.—p. 41.
Acute Pancreatic Necrosis: Clinical Lecture. J. H. Pratt, Boston.—p. 47.
Comparative Study of Tuberculin Patch Test and Standard Intradermal Test (Purified Protein Derivative). R. B. Kerr, Manchester, N. H., and A. L. Winsgrad, Nashua, N. H.—p. 53.
*Can Infantile Paralysis Be Spread by Bathing in Sewage-Polluted Waters? S. M. Ellsworth, Boston.—p. 55.
Allergy to Tubercle Bacilli as Possible Cause of Acute Pulmonic Consolidation. D. A. Sampson, Philadelphia.—p. 58.
Medical Aspects of Obstetrics. T. R. Goethals, Boston.—p. 60.

Cardio-Omentopexy in Angina Pectoris.—Strieder and his associates review the literature on the revascularization of the ischemic heart. Beck was the first to make an attempt at revascularization of the ischemic heart in the human subject. Using the pectoralis major muscle as a pedicled graft, Beck attempted to bring a new blood supply to the heart in a human subject. O'Shaughnessy, who also experimented on cardiac grafting, used instead of muscle a pedicled omental graft. O'Shaughnessy has thought that the control of postoperative shock is an easier matter following cardio-omentopexy than following Beck's operation. Moreover, cardio-omentopexy is less time consuming and, other factors being equal, the omentum is obviously a better vascularizing agent than is the pectoralis major muscle. Because of these considerations the authors have concluded that cardio-omentopexy, when feasible, is the operation of choice for the establishment of a new blood supply to the heart by surgical means. They have performed it in two cases. In the selection of cases for operation they insist on the fulfilment of several requirements. There must be indisputable evidence of coronary heart disease with angina pectoris. At present the authors insist also that the patient be under 60 years of age and not obese. Serious complications in other organs are contraindications. Patients with marked hypertension and cardiac enlargement are rejected. Furthermore, the authors are of the opinion that patients who give evidence of congestive failure are not suitable candidates for operation. They describe the technic of cardio-omentopexy and review the postoperative course. They stress that the technic of this operation must be seriously concerned with the prevention of postoperative diaphragmatic hernia, as well as with the attachment of omentum to the heart. They report two cases in which they resorted to cardio-omentopexy. They think that many more patients must be operated on before any sweeping conclusions can be drawn, but they believe that the principle of revascularization is sound.

Infantile Paralysis Spread by Sewage-Polluted Waters.—Ellsworth says that in 1935 Massachusetts was visited by an epidemic of infantile paralysis. Fall River, with 114 cases reported, had the highest incidence of any city or town. Having but recently observed the effect of sewage on the bathing beaches at Fall River, the author wondered whether this pollution had any effect on the high incidence of infantile paralysis in that city. It is his conviction that there is sufficient presumptive evidence to warrant further investigation and research. He formulates the argument as follows: Since epidemic infantile paralysis occurs almost invariably during the summer, it is reasonable to assume that the disease may be spread not only by direct or indirect personal contact but also by some agency which is effective during the warm summer months. From the evidence in Massachusetts, the incidence of the disease during

epidemics is generally highest in communities situated along the seacoast or along rivers the waters of which are subject to sewage pollution. It has been possible to produce the disease in monkeys from the virus obtained from human stools of a case of abortive poliomyelitis as long as twenty-five days after the onset of the disease. It has also been shown that the virus in refrigerated human stools remains viable for at least ten weeks. For every recognized case there are apparently many unrecognized cases by which infection can be spread. During epidemics, and probably at other times, the virus from active cases or from carriers is undoubtedly present in the sewage of an affected community. Infection by way of the olfactory nerves is possible, and it appears probable that this is a common way of contracting the disease. Given a sufficient concentration of the virus in sewage-polluted water, it is conceivable that infection can be caused by the admission of such water into the nasal passages of a bather. While the possibility of infection by bathing in sewage-polluted water has been considered in the past and tentatively dismissed for lack of evidence, sufficient additional knowledge has been accumulated in recent years concerning infantile paralysis to warrant reconsideration of the conclusions reached by previous investigators. In any future epidemic it would seem advisable that more attention be given to this possibility. The author realizes that this theory of transmission of infection has weaknesses. Until the reason for this seasonal occurrence has been discovered, any rational theory of transmission that has not been definitely disproved deserves consideration.

Surgery, Gynecology and Obstetrics, Chicago

70: 129-256 (Feb. 1) 1940

Measurements of Uterine Contractions in Late Pregnancy: Study of Five Patients with Lörind Tocograph. D. P. Murphy, Philadelphia.—p. 129.
Endometriosis of Sigmoid, Rectosigmoid and Rectum. C. W. Mayo and J. M. Miller, Rochester, Minn.—p. 136.
*Ludwig's Angina. A. C. Williams, Boston.—p. 140.
Formation of Ganglions and Cysts of Menisci of Knee: Observations on Golgi Apparatus. E. S. J. King, Melbourne, Australia.—p. 150.
Irritation of Respiratory Tract and Its Reflex Effect on Heart. L. C. Reid and D. E. Brace, New York.—p. 157.
*Malignant Disease of Face, Mouth, Pharynx and Larynx in First Three Decades of Life. G. B. New and C. S. Hertz, Rochester, Minn.—p. 163.
Experimental Study of Uretero-Intestinal Implantation: III. Significance of Ureterocloacal Reimplantation in Chicken. H. M. Weyrauch Jr. and F. Hinman, San Francisco.—p. 170.
Ureteral and Renal Complications of Carcinoma of Cervix: Their Classification and Management. H. L. Jaffe, J. V. Meigs, R. C. Graves and C. J. E. Kickham, Boston.—p. 178.
Malignant Tumors of Thyroid Gland: Report of 200 Consecutive Cases. U. V. Portmann, Cleveland.—p. 185.
Plastic Restoration of Deformity Caused by Complete Exenteration of Orbit. A. Hagedoorn, Amsterdam, Netherlands.—p. 193.
Intracranial Collections of Iodized Oil Following Lumbar Myelography. L. H. Garland and E. J. Morrissey, San Francisco.—p. 196.
Anesthesia in Thyroidectomy for Thyrotoxicosis. W. H. Cole and R. Brunner, Chicago.—p. 211.
Ovarian Autografting for Endometriosis. V. S. Counseller and D. H. Wrork, Rochester, Minn.—p. 220.
Sarcoma of Endometrial Stroma. J. R. McDonald, A. C. Broders and V. S. Counseller, Rochester, Minn.—p. 223.
Rhabdomyosarcoma of Corpus Uteri. R. E. L. Gunning and C. A. Ross, Galesburg, Ill.—p. 230.
Phlegmonous Gastritis. E. C. Cutler and J. H. Harrison, Boston.—p. 234.
*Observations on Acute Appendicitis: Series of 635 Cases. I. Busch and A. H. Spivack, New York.—p. 241.

Ludwig's Angina.—Williams points out that the mortality in thirty-one recent cases that he collected from five local hospitals was 54 per cent. Such a rate suggests that the disease does not receive proper recognition and treatment. In Ludwig's angina a massive swelling, often bilateral, always brawny and tender but rarely fluctuant, involves the suprahyoid region, being extreme in the submaxillary area. The overlying skin is conspicuously free of inflammation, showing only edema. The floor of the mouth is raised, edematous and brawny. The mucous membrane beneath the tongue is often ulcerated and dirty grayish white. The tongue is swollen and pushed upward, and it may become so crowded by sublingual edema that its tip protrudes between the teeth. Respiratory obstruction, due to blockage of the airways by an elevated or edematous tongue, is frequent. Emergency tracheotomy was performed on eight of thirty-one patients in this study. Four patients on whom tracheotomy was not done died of asphyxia. Bronchopneumonia complicated eight cases, seven of which terminated fatally. Extension of the infection took place in eight cases, seven of which were fatal. The aims of treatment are to establish an airway, to relieve tension, to secure drainage and to combat the infection through supplementary measures. Tracheotomy is the most dependable means of securing an adequate airway. The tracheotomy incision should commence just below and slightly anterior to the angle of the jaw and run forward, parallel to and about 1 cm. below the body of the mandible, until it reaches the midline anteriorly. It should divide the deep cervical fascia, the mylohyoid diaphragm and the anterior belly of the digastric muscle penetrating upward so that the tongue and the mucous membrane of the floor of the mouth may be explored. Such an incision lessens tension and improves the airway. The choice of anesthesia warrants deliberation. At the Boston City Hospital pentothal was used in four and evipal in two cases of Ludwig's angina of the present series. Pentothal sodium is offered as a suggestion which future experience may or may not substantiate. Its use must be restricted to those familiar with the administration of pentothal. Sulfanilamide is of great value in cases showing positive Streptococcus haemolyticus cultures. Zinc peroxide is indicated when anaerobic organisms are present.

Malignant Disease of Face and Oral Cavity.—New and Hertz review the histories of the 233 patients up to 30 years of age who were treated for malignant disease of the face, mouth, pharynx or larynx. The number of cases of malignant disease increased with each succeeding decade. There were 100 cases of squamous cell epithelioma, and the five year survival figures were similar to those of other observers. In other words there is real prognostic value in grading such malignant growths, as one can offer the patients with grade 1 lesions a 90 per cent chance for recovery whereas the prognosis for those with grade 4 lesions is very poor (3.8 per cent). Malignant disease of the tongue, palate, tonsil, pharynx, upper jaw and antrum, lower jaw and larynx in young persons is thought to carry a poor prognosis. However, of the seventy-three patients who were traced, twenty-four (32.9 per cent) were living five years after treatment and of the thirty-six patients who were traced eleven (30.6 per cent) were living ten years after treatment. If cancer of the lip is included, of the 111 patients who were traced fifty-six (54.4 per cent) were living five years after treatment and of sixty-three traced for ten years thirty-two (50.7 per cent) were living.

Acute Appendicitis.—Busch and Spivack base their remarks on an analysis of 635 consecutive cases of acute appendicitis at the Beth Israel Hospital in which about seventy different surgeons, including twenty house surgeons, performed operations. The mortality was 2.2 per cent. The factors found to contribute to the mortality have been the duration of the disease and the use of cathartics. Diabetes was also found to be a serious complication. Cathartics definitely increase the severity of the disease. There should be no temporizing in cases suspected of being acute appendicitis when diabetes is a complicating factor because the pathologic process advances with great rapidity in such cases. Gangrenous appendicitis with perforation gave the highest mortality in the series. The general rule in this hospital is to operate immediately when the diagnosis of acute appendicitis has been established.

Texas State Journal of Medicine, Fort Worth

35: 595-662 (Jan.) 1940

Surgical Evaluation of Pathologic Gallbladder. H. R. Owen, Philadelphia.—p. 600.
Diagnosis and Treatment of Acute Intracranial Hematomas. S. R. Snodgrass, Galveston.—p. 605.
Sterility in the Female: Its Study and Treatment. M. J. Meynier Jr., Houston.—p. 610.
Oxygen Therapy and Oxygen Therapy Equipment, with Special Reference to Improved Oxygen Therapy Tent for Administration of High Concentrations of Oxygen. T. A. Taylor and Marian A. Baker, Lufkin.—p. 615.
Clinical Observations on Pure Glucoside of Digitalis Lanata, Digoxin. E. H. Schwab, Galveston.—p. 619.
Encephalomyelitis as Complication of Vaccinia: Report of Case. J. A. Nunn and P. Magrish, San Antonio.—p. 622.
Use of Tellurite Mediums in Diphtheria Culture. J. F. Pilcher, Corpus Christi.—p. 624.
Clinical Management of Laryngeal Carcinoma. L. M. Sellers, Dallas.—p. 627.
Leprosy as Public Health Problem. F. A. Johansen, Carville, La.—p. 629.
Plea for Greater Unity Between the Medical and Public Health Professions. J. N. Baker, Montgomery, Ala.—p. 635.
Intracapsular Cataract Surgery. W. S. Webb, Fort Worth.—p. 641.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Disease in Childhood, London

14: 279-358 (Dec.) 1939

*Prognosis in Celiac Disease: Review of Seventy-Three Cases. C. Hardwick.—p. 279.
Use of Irradiated Evaporated Milk in Infant Feeding. R. W. B. Ellis. —p. 295.
*Cause of Reduction of Sugar Content of Cerebrospinal Fluid in Meningitis. Esther Hendry.—p. 307.
Iron-Resistant Anemia and Latent Rickets in School Children. Nuala Crowley and S. Taylor.—p. 317.
Pneumonia in the Newborn. Agnes R. Macgregor.—p. 323.

Prognosis in Celiac Disease.—Hardwick followed up seventy-three cases of celiac disease observed between 1923 and 1938. The diagnosis of celiac disease was made on the history of diarrhea, anorexia and loss of weight, accompanied by the classic clinical features and the finding of an excess of normally split fat in the stools on more than one occasion. Fifteen years has elapsed since the first patient was seen and the oldest living subject is now 16½ years old. Twenty-two of the patients died in the hospital, and all but ten (14 per cent) of the remainder have been traced. Four other patients died when the disease was not active. Those alive have been examined to determine if the disease was active, cured or quiescent, or if it had left any trace of its activity. Death was usually due to an exacerbation of the disease, the diarrhea increasing and dehydration and intoxication becoming marked. Only four children died from bronchopneumonia. Seventeen patients appeared to have recovered clinically and biochemically for more than three years; ten had been in a similar condition for less than three years. Together these form a group of 37 per cent of the whole. The disease of six patients is still in its first phase of activity. Four patients were thought to be well until stool analyses showed steatorrhea. These patients are in a quiescent phase of the disease, which, if in adult life it becomes reactivated, is usually diagnosed as idiopathic steatorrhea. To such the name latent celiac disease should be given. Patients who have had celiac disease tend to remain dwarfed, but their intellect is not affected.

Sugar Content of Cerebrospinal Fluid in Meningitis.—Reduction in the dextrose content of the cerebrospinal fluid is a familiar observation in all forms of meningitis, but the cause of this has not yet been definitely determined. Hendry reviews the literature, from which it seems unlikely that lessened permeability of the choroid plexus to the passage of sugar into the cerebrospinal fluid is the cause for the reduction. The evidence points to the reduction being due to the action either of bacteria or of leukocytes. The author devised tests to determine if there is an alteration in the permeability of the blood brain barrier to dextrose, if the action of bacteria is the cause of the reduction or if the presence of leukocytes is responsible for the reduction. He observed that in the early stages of cerebrospinal fever a greatly increased cell count and a positive bacterial culture are almost invariably encountered. At this time the sugar content is extremely low. The patients were treated with sulfanilamide, and a sterile cerebrospinal fluid was found on the second or at the latest on the third occasion on which lumbar puncture was performed. As at this stage of the illness the cell count is still high and the sugar content, though rising, well below normal limits, these observations would suggest that meningococci are not responsible for the breakdown of dextrose. In cases of meningococcic meningitis the cell picture of the fluid changes from being almost entirely polymorphonuclear to one composed largely of lymphocytes. In the early stages there is great reduction in the cerebrospinal fluid sugar content, while in the later stages when the exudate is largely composed of lymphocytes the sugar content approaches the normal level. In conditions such as benign lymphocytic meningitis, in which there is a purely lymphocytic exudate, there is no sugar reduction in the spinal fluid. Two cases of meningitis due to Bacillus coli showed complete absence of cerebrospinal fluid sugar, an occurrence which might be expected as two factors are operative: a strongly glycolytic organism in addition to a large polymorphic cellular exudate. In tuberculous meningitis conclusions are not so easily drawn but it is suggested that, as the tubercle bacillus has practically no power to break down sugar and as it is present in the cerebrospinal fluid only in small numbers, the part that it plays in reducing cerebrospinal fluid sugar need not be considered. In the early stages of the disease the cellular exudate in the spinal fluid is largely lymphocytic and at this time the sugar content of the fluid is not greatly below normal. As the disease progresses to its fatal issue there is an increase in the number of polymorphonuclear cells and a simultaneous decrease in the sugar content. It is concluded that polymorphonuclear leukocytes possess powers of glycolysis and their presence is the reason for reduced cerebrospinal fluid sugar in purulent meningitis and for the progressive decrease in its sugar content in tuberculous meningitis.

Australian J. Exper. Biol. and M. Science, Adelaide

17: 333-464 (Dec.) 1939. Partial Index

*Anatomic Distribution and Character of Lesions of Poliomyelitis, with Special Reference to Type of Cell Affected and to Port of Entry of Virus. C. Swan.—p. 345.
Poliomyelitis: III. Use of Macacus Cynomolgus as Experimental Animal. F. M. Burnet, A. V. Jackson and E. G. Robertson.—p. 375.
Spreading Power of Some Bacteria Associated with Corynebacterium Diphtheriae in Faucial Diphtheria. H. Wilson.—p. 393.
Studies in Respiration: I. Simple Method for Investigation of Fractional Samples of Expired Air. F. S. Cotton.—p. 425.
Id.: II. Occurrence of Apparently Paradoxical Rise in Oxygen Percentage of Increasingly Deeper Samples of Alveolar Air. F. S. Cotton.—p. 433.
Vitamin A and Vitamin D Content of Some Australian Fish Liver Oils. M. M. Cunningham and E. C. Slater.—p. 457.

Distribution and Character of Lesions of Poliomyelitis.—From a microscopic examination of the central nervous system in eight cases of poliomyelitis Swan makes the following remarks: The distribution of the meningeal infiltration is modified by the flow of the cerebrospinal fluid. Necrosis of nerve cells in the cerebral cortex is confined to the area gigantopyramidalis, and almost entirely to the Betz cells of that area. The rhinencephalon (including the olfactory bulbs) was surprisingly but slightly involved. Lesions were found only in the anterior perforated substance and in one instance in the cornu ammonis. Evidence for the process of neuronophagocytosis was seen in the pigmented cells of the locus caeruleus. Selective affinity of the virus for cells of the motor type is not absolute except perhaps in the cerebral cortex and the cerebellum. However, motor cells are more often and more severely involved than sensory cells. The medial longitudinal bundle seems an important path for the spread of the pathologic process. Infection by the virus of poliomyelitis by the olfactory route is either less common than was formerly thought or is not commonly fatal; i. e., the virus is localized in the olfactory bulbs and immunization takes place. Cases with initial bulbar palsy probably result from infection by the tonsillopharyngeal route. There is no fully conclusive evidence for infection by the gastrointestinal route in man.

British Journal of Dermatology and Syphilis, London

51: 501-574 (Dec.) 1939

Pathogenesis of Rosacea: Review, with Special Reference to Emotional Factors. R. Klaber and E. Witthower.—p. 501.

British Journal of Experimental Pathology, London

20: 439-518 (Dec.) 1939

New Method of Culturing Sputum on Solid Mediums Using Carbon Dioxide for Isolation of Pneumococci. W. J. Auger.—p. 439.
Factors Influencing Infectivity of Fowl Tumors. F. R. Selbie and J. McIntosh.—p. 443.
Tissue Changes in Ascorbic Acid Deficient Guinea Pigs. D. L. MacLean, Margaret Sheppard and E. W. McHenry.—p. 451.
Neutralizing and Complement Fixing Properties of Antiserums Produced by Fractionated Extracts of Nonfiltrable Dibenzanthracene Fowl Sarcoma. L. Foulds and L. Dmochowski.—p. 458.
Complement Fixing Antigen Common to Filtrable and Nonfiltrable Tumors of Fowls. L. Dmochowski and R. Knox.—p. 466.
Observations on Reaction Between Lethal Toxin of Clostridium Welchii (Type A) and Human Serum. F. P. O. Nagler.—p. 473.
Physical and Chemical Examination of Vaccinia Virus. A. S. McFarlane, M. G. Macfarlane, C. R. Amies and G. H. Eagles.—p. 485.
Alum Precipitated Diphtheria Toxoid. F. V. Lingood.—p. 502.
Further Studies on Absorption, Mobilization and Excretion of Lead. S. L. Tompsett.—p. 512.

British Medical Journal, London

2: 1261-1302 (Dec. 30) 1939

The Painful Shoulder. P. D. Wilson.—p. 1261.
Treatment of Hemorrhoids. W. B. Gabriel.—p. 1266.
Electrically Induced Convulsions in Treatment of Mental Disorders. W. H. Shepley and J. S. McGregor.—p. 1269.
Treatment of Otorrhea by Argyrol Displacement. W. O. Reid.—p. 1271.
Acute Torsion of Gallbladder. A. H. Barber.—p. 1272.

Journal of Mental Science, London

86: 1-194 (Jan.) 1940

Review of Gestalt Psychology. J. M. Blackburn.—p. 1.
Clinical Study of Mescaline Psychosis, with Special Reference to Mechanism of Genesis of Schizophrenic and Other Psychotic States. G. T. Stockings.—p. 29.
Comparison Between Some Effects of Isomyn (Benzedrine) and of Methylisomyn. F. L. Golla, J. M. Blackburn and S. Graham.—p. 48.
Rehabilitation and Resocialization Scheme for Psychopathic Patients. L. H. Wootton and L. Minski.—p. 60.
Meinicke Clarification Reaction: Factors Influencing Nonspecific Zone Phenomena. W. M. F. Robertson and D. B. Colquhoun.—p. 66.
Lesions of Spinal Column Resulting from Convulsion Therapy. G. Kraus, and H. J. Viersma.—p. 76.
Observations on Symptoms of Hyperinsulinism in Relation to Blood Sugar and Ketone Bodies of Blood. R. Freudenberg and J. Fine.—p. 84.
Psychology of Convulsion Therapy. D. W. Abse.—p. 95.
Some Clinical Examples of "Dys-Symbole": Its Relation to Shock Therapy. J. S. Thomas.—p. 100.
Some Further Observations on Vitamin C Estimations in Psychotic and Psychopathic Patients. L. Minski and N. D. Constantine.—p. 109.
"Stationary" General Paralysis of Insane: Report on Case of Thirty-One Years' Duration. A. J. Galbraith.—p. 112.

Lancet, London

2: 1353-1394 (Dec. 30) 1939

*Electric Convulsion Therapy of Schizophrenia. G. W. T. H. Fleming, F. L. Golla and W. G. Walter.—p. 1353.
*Dark Adaptation Test: Its Reliability as Test for Vitamin A Deficiency. L. J. Harris and M. A. Abbasy.—p. 1355.
Pernicious Anemia in Egypt. S. A. Pasha and A. F. Zanaty.—p. 1359.
*Clinical Use of Triphenylchlorethylene. A. I. S. Macpherson and E. M. Robertson.—p. 1362.
Agranulocytosis Complicating Treatment of Acute Pemphigus with Sulfapyridine. D. Erskine and J. E. Royds.—p. 1366.
Pemphigus Neonatorum Treated with Sulfapyridine. A. G. Troup and R. M. White.—p. 1367.
Otosclerosis Treated with Sex Hormones. J. Bernstien and L. Gillis.—p. 1368.
Redistribution of Abnormal Foot Pressure. M. S. Holman.—p. 1369.

Electric Convulsion Therapy in Schizophrenia.—Fleming and his associates point out that Cerletti and Bini reported in 1938 that the passage of a strong alternating current through the head usually resulted in immediate unconsciousness followed by a prolonged fit. They worked out a technic whereby this phenomenon could be used to replace the injection of convulsant drugs in the treatment of schizophrenia and administered shocks to several hundred patients. Fleming and his associates tested this method of electrical convulsion therapy on five schizophrenic patients. They administered seventy-five shocks, as a result of which there have been fifty major convulsions and twenty-five minor seizures. The major convulsions are similar to spontaneous ones and are followed by complete amnesia for the shock. No untoward results have been observed. The claims of Cerletti and Bini are confirmed; the method is technically effective, simple and safe and arouses no fear or hostility in the patients. No attempt is made to assess the therapeutic value of the method, which Cerletti and Bini state is the same as that of metrazol.

Dark Adaptation as Test of Vitamin A Deficiency.—Harris and Abbasy discuss experiments carried out to reinvestigate the reliability of dark adaptation tests for detecting deficiency of vitamin A. The Birch-Hirschfeld photometer was used, with several improvements in technic: a large screen was used for the "bleaching," and during the test the subject's attention was kept directed to the position of the quincunx. Two precautions were taken: 1. Each subject was reexamined repeatedly and the initial value not accepted until it had been found to remain relatively constant on successive occasions. 2. To check the specificity of the result, subjects found to be subnormal were divided into two groups, half being treated with the vitamin and the other half kept as controls. The criterion accepted for subnormal dark adaptation was a diaphragm reading of 6 or over (with wedge set at 5) after ten minutes in the dark; the reading immediately after the "bleaching" was considered of less value, mainly because of its rapid rate of change. Control tests indicate that, under the ordinary working conditions, previous exposure to light had no important influence on the results. Among middle-class adults cases of lowered dark adaptation seemed relatively rare and readings were not improved beyond the usual normal by treatment with vitamin A. The following evidence is offered that the method of the dark adaptation test is sound in principle: 1. Children found subnormal returned slowly to normal after treatment with large amounts of vitamin A, whereas an equal number of controls left untreated remained subnormal. 2. Scrutiny of earlier results on children attending elementary schools revealed a heretofore unsuspected correlation with their individual dietary histories—among children having two thirds of a pint of milk at school 67 per cent were normal on test, whereas of those having one half pint or less only 37 per cent were normal. 3. The incidence of lowered dark adaptation among the various social classes examined has borne a relation to their dietary intake. 4. Attention is drawn to the work of other investigators proving a correlation between deficient intake of vitamin A and lowered dark adaptation. It is concluded that the theoretical basis of the test is reliable, although the apparatus and technic can be further improved. The dark adaptation test is capable only of detecting deficiency and not of assessing different levels of normality. Since the test is relatively intricate it is not suitable for rapid routine use by school medical officers. It can have its application in surveys on small selected samples of the population to confirm the supposition of deficient dietary intakes or for diagnosis in the clinic. Deficiency seems less common among adults than in children.

Clinical Use of Triphenylchlorethylene.—Macpherson and Robertson used triphenylchlorethylene in this investigation because its action is greater and more prolonged than that of triphenylethylene. The forty-one cases treated included amenorrhea, menopausal symptoms, atrophic vulvitis or some similar condition, atrophic rhinitis and cases in which it was desirable to inhibit lactation. Triphenylchlorethylene was prepared for oral use in tablet form, each tablet containing 200 mg.; in ampules containing 250 mg. dissolved in 5 cc. of sesame oil, suitable for injection, and in cocoa butter made up in the form of vaginal suppositories, each containing 100 mg. Tablets are given after meals, and as many as nine a day may be given without any fear of producing toxic effects. Two injections are given a week apart to begin with, followed by a third injection three weeks after the second. Subsequent injections may be given at intervals of three or four weeks according to the response produced. Vaginal suppositories are used nightly for the first fourteen days of treatment and then on alternate nights or every third night, as determined by the progress made. In each of the four cases of amenorrhea treated there have been periods of withdrawal bleeding between the courses of treatment. The total dosage that has produced this result has been from 12,000 to 16,000 mg. Of the patients with vulvitis and vaginitis, seven had atrophic rather than primarily infective vulvitis and vaginitis. The eighth patient in this group complained of intense itching of the vulva. The drug was given orally in four cases and by injection in four. The amounts used in each course of treatment were not constant throughout this group, but the variations were not wide. The result of the treatment in almost every case was complete relief from symptoms and in seven of eight cases the local condition was obviously improved. The patients with menopausal symptoms all received the drug in tablet form, from 200 to 1,800 mg. (from one to nine tablets) being taken daily for, in some cases, several successive courses of from four to five weeks. The effect of the drug was noticed within two days of the start of treatment, and after the average course, which lasted from three to four weeks, the action of the drug was maintained for another two weeks before any recurrence of symptoms was noticed. Triphenylchlorethylene was given to twelve patients to inhibit or stop milk secretion, six by mouth and six by injection. In those treated by mouth the total dosage has been about 4,000 mg. given over a period of five or six days. Where treatment was begun shortly after delivery, the breasts remained soft and painless in four of six cases. Of the other two patients, one experienced discomfort on the third day and the other secreted a considerable quantity of colostrum for three days but no milk. Of two patients, treated by injection on the first day of the puerperium, the breasts showed no engorgement and remained painless. Where lactation was already established, treatment by tablets or by injection of from 250 to 300 mg. led to cessation of milk secretion after from three to five days, and in no case was there any recurrence. Trichlorethylene has no definite toxic effects and can be administered in large doses or over a long period. The duration of action by mouth closely approximates that of stilbestrol. By injection, however, the duration is singularly prolonged; after

500 mg., by the technic described, effective action persists for from six to nine weeks. By this method, therefore, a very small dosage is sufficient to maintain a continuous high level of estrogen activity.

New Zealand Medical Journal, Wellington

38: 375-436 (Dec.) 1939

Classification and Treatment of Nephritis. R. Chisholm.—p. 385.
Parathyroid Adenoma: Report of Case. D. Whyte.—p. 394.
*Congenital Neurosyphilis: Report of Two Cases in One Family. J. Borrie and M. McGeorge.—p. 398.
Intussusception Following Partial Gastrectomy: Report of Case. C. P. Powles.—p. 401.
The Medical Profession and the Social Security Act. J. P. S. Jamieson.—p. 403.

Congenital Neurosyphilis.—Borrie and McGeorge recently encountered two juvenile cases of congenital syphilis of the nervous system, one of the parenchymatous and the other of the interstitial type. The boy, aged 15 years, presented a typical instance of dementia paralytica, while his half-sister, 4 years, died from meningovascular syphilis. These children were the offspring of the same mother. There were no other children in the family.

South African Medical Journal, Cape Town

12: 775-794 (Dec. 9) 1939

Modern Views on Diabetes Mellitus. I. Sacks.—p. 777.
Pneumonia in Children Treated with Sulfapyridine. W. Girdwood.—p. 781.
*Manzullo Immediate Tellurite Test in Diphtheria. J. F. Murray.—p. 787.

Tellurite Test for Diphtheria.—Murray compared the results of the tellurite test for diphtheria with the bacteriologic results of an unselected consecutive series of pharyngeal exudates. Owing to the long distances separating many practitioners from laboratories in South Africa and the consequent delay in receiving laboratory confirmation of a diagnosis of diphtheria, the author felt that the test if its reliability was confirmed would be especially valuable under the conditions existing in South Africa. The results of the test in a series of sixty-two cases show thirty-eight positive direct tellurite tests, but eleven (28.9 per cent) of these were neither bacteriologically nor clinically acceptable as cases of diphtheria. In twenty-four cases giving a negative tellurite test, five (20.8 per cent) were definite cases of diphtheria. Putting the results in another way, 84.3 per cent of the diphtheria cases gave positive results, but on the other hand 36.6 per cent of nondiphtheritic cases also gave positive results. These results correspond closely to those obtained by Tombleson and Campbell, by Couper and his associates and by Tynan (1939). With such a high percentage of error in each direction it seems unlikely that the test is of any practical value. Reliance for the diagnosis of diphtheria in this area at least must continue to be placed on the clinical and bacteriologic observations. The varying reports made on results of the test in different series since Manzullo's publication would appear to bear out the percentage error. In Johannesburg at least it has failed to provide any reliable assistance in the more speedy diagnosis of diphtheria.

Tohoku Journal of Experimental Medicine, Sendai

37: 189-372 (Dec.) 1939. Partial Index

Influence of Short Wave Irradiation on Glomerular Filtration and Tubular Retroresorption in Normal and Enervated Kidney. M. Koiwa.—p. 202.
Arakawa's Reaction and Vitamin C Content of Human Milk: Part V. Difference Between Arakawa-Negative Human Milk and Human Milk Made Arakawa Negative by Ascorbic Acid Added. S. Isono.—p. 216.
*Behavior of Basophil Erythrocytes in Some Surgical Diseases, with Especial Consideration of Renal Tuberculosis. H. Kamioka.—p. 263.
Action of Bile on Intestinal Tonus and Peristalsis. S. Kawada.—p. 317.
Does Exclusion of the Carotid Sinus Augment Epinephrine Secretion from Suprarenal Gland in Nonanesthetized Dog? M. Wada, T. Hirano and Y. Taneiti.—p. 335.
Elimination of Hippuric Acid in Urine Following Benzoic Acid Tolerance Test in Surgical Renal Diseases. I. Suzuki.—p. 346.
Behavior of Dry Substance, Ash and Total Nitrogen in Impairment of Liver. Tsi-Tsao Chen.—p. 360.
Distribution of Nitrogen in Liver Following Poisoning with Phosphorus. Tsi-Tsao Chen.—p. 367.

Behavior of Basophilic Erythrocytes in Surgical Diseases.—According to Kamioka the basophilic erythrocytes, that is, polychromatophilia and basophilic stippling, have been regarded by some as a degenerative process of the erythrocytes, by others as a sign of regeneration. Basophilic stippling was observed first chiefly during lead poisoning but later also in anemias and in various renal disorders. The author decided to investigate their occurrence during surgical disorders, particularly those of the kidney. He made investigations on forty healthy persons and on 204 surgical patients. Among the latter group there were thirty with acute pyogenic infection, fifty with tumors, mostly cancers, twenty-one with extrarenal surgical tuberculosis, sixty-seven with renal tuberculosis and twelve with other surgical diseases of the kidneys. In the healthy persons the average number of basophilic erythrocytes was 159. In the acute pyogenic infections the basophilic erythrocytes were considerably increased, the average number being 432. In the mild and localized pyogenic infections the increase was mild, but in the cases of sepsis, particularly those in which the erythrocyte count and the hemoglobin value were reduced, the increase in basophilic erythrocytes was great. The increase was especially noticeable after surgical removal of the focus and evacuation of the pus. In sepsis which had a lethal outcome there was no increase in the basophilic erythrocytes. In the patients with cancer the basophilic erythrocytes were slightly increased, but the increase became greater following the radical removal of the cancer. In extrarenal surgical tuberculosis (chiefly tuberculosis of the lymph nodes, bones and joints) the increase in basophilic erythrocytes was moderate. In the patients who had undergone nephrectomy for renal tuberculosis the author observed that the increase in basophilic erythrocytes was the more noticeable the less advanced was the destruction of the renal parenchyma. In the nontuberculous surgical diseases of the kidney the basophilic erythrocytes showed a more or less pronounced increase even in the absence of anemia and renal insufficiency. The author reaches the conclusion that the increase in the basophilic erythrocytes must be regarded as a regenerative process of the erythrocytes.

Archives des Maladies de l'Appareil Digestif, Paris

29: 817-936 (No. 8) 1939

Endoscopic Studies of Operations on Stomach. F. Moutier and B. Ghelew.—p. 817.
Diffused Epitheliomatous Lymphangitis of Stomach. A. Cain and R. Claisse.—p. 834.
*Ulcers of Second Portion of Duodenum: Case. M. Brulé, P. Hillemand, E. Gilbrin and L. Callandry.—p. 846.
*Ulcers of Second Portion of Duodenum. J. Demirleau.—p. 856.

Ulcers of Second Portion of Duodenum.—Brulé and his associates report a case of ulcer of the second portion of the duodenum in which gastro-enterostomy was successfully performed. A man aged 29 had severe attacks of pain for five years that appeared but once each year, lasted about twenty days and were eased by vomiting. The last onset was attended by hematemesis that made blood transfusion necessary. Roentgenograms revealed a deep cavity at the interior edge of the upper part of the second portion of the duodenum. Two thirds of the way above this cavity the second portion was found narrowed with an irregular marginal configuration, contrasting with the dilatation noticeable in the lower part of the second and in the third portion. Duodenal ulcers of the second portion are usually found between the upper bend and the ampulla of Vater. They are terebrant, affect the pancreas and are accompanied with serious manifestations of periduodenitis and pancreatitis. They often appear as huge tumoral masses with hyperemia of tissues and pronounced vascularization. The authors stress the importance of a differential x-ray diagnosis directed to duodenal diverticula, to the dilatation of the ampulla of Vater, especially when it attains significant dimensions, and to certain bulbar ulcers, since in consequence of inflammatory reactions or adhesions the shape and contour of the bulb may be completely modified. Complications in duodenal ulcers of the second portion may be due to stenosis of the bile duct and duodenum, to pancreatitis and to perforation. Hemorrhages are frequent. The choice between medication and surgical intervention is determined by the consideration of the frequency of hemorrhages and the presence of a considerable inflammation in the area about the ulcer. The surgical operation of choice depends on the presence or absence of the tumoral mass, its site, its size and the extent of vascularization. In the present case the presence of a crater across the anterior wall large enough to allow a finger to pass through and the considerable degree of vascularization rendered exeresis impossible and made gastro-enterostomy the surgical method of choice.

Ulcers of Second Portion of Duodenum.—Demirleau reports four cases of duodenal ulcers in which, on clinical and radioscopic examinations, gastrectomy with exclusion was performed. The age of the patients ranged between 28 and 56 years. In all patients gastric or epigastric pains had made their first appearance in early infancy (second or third year). In all four cases large ulcers were discovered in the second portion of the duodenum, three times with implications of pancreatitis. In one case a stenosis was found below the upper bend, large enough to prevent passage of a finger. In another case the base of the ulcer was situated 2 cm. above the ampulla of Vater and the ulcer had eaten its way into the bile duct causing an opening of more than 1 cm. All cases had fatal endings, three from complications (pneumonia, peritonitis, pleurisy), the fourth from an involvement of surgical complications. Four necroscopic views with reduced replicas are shown.

Journal de Chirurgie, Paris

55: 1-96 (Jan.) 1940

Radical Treatment of Large Genital Prolapse: Total or Subtotal Colpectomy with Vaginal Hysterectomy and Perineovulvar Plastic Operation. G. Rouhier.—p. 1.
Occlusive Treatment of Fractures of War. J. Soulié and C. Linares. —p. 22.
*Two Attempts at Cortico-Adrenal Reactivation by Enervation of Sinus Caroticus. L. Léger.—p. 38.

Adrenal Reactivation by Enervation of Sinus Caroticus.—Léger reports two cases of adrenal insufficiency. A woman aged 52, who had attacks of feebleness and the pigmentation characteristic for adrenal insufficiency, did not show noticeable improvement from treatment with adrenal cortex extract. Enervation of the sinus caroticus was made on the right side. The emaciated patient tolerated the operation well. Four months later the facial pigmentation had greatly diminished but in other parts of the body the pigmentation was still largely unchanged. The patient had gained 15 Kg., the arterial tension had increased and the asthenia had completely disappeared. A man aged 40, who had pulmonary tuberculosis and later developed the symptoms of Addison's disease, namely pigmentation, asthenia, digestive disturbances and low arterial tension, experienced only a slight amelioration of short duration from adrenal cortex extract, so enervation of the sinus caroticus was performed on the right side. The patient's appetite increased, and vomiting and constipation subsided. The arterial tension did not change much and the pigmentation persisted, although the patient declared that it showed a tendency to diminish. The author reviews the literature on the enervation of the sinus caroticus in Addison's disease. He concludes that the results justify further trials of this method.

Presse Médicale, Paris

47: 1625-1648 (Dec. 19) 1939. Partial Index

Gangrene in Obliterated Aneurysms of Members: Nature of Humid Gangrene. R. Leriche and F. Froehlich.—p. 1625.
Iron in Therapeutic Hydrology. M. Piery and J. Enselme.—p. 1628.
Cushing's Syndrome. D. Furtado and X. Morato.—p. 1632.
Section of Presacric Plexus: Justification and Technic. G. Arnulf. —p. 1635.
Primary Anthrax of Pharynx. R. F. Vaccarezza.—p. 1642.
*Late Accidents After Use of Oil Suspensions of Gold Salts. G. Rossel. —p. 1644.
Case of Infantile Pulmonary Tuberculosis with Elimination of Pneumoliths. L. de Castro Freire and A. Saldanha.—p. 1647.

Late Accidents After Use of Oil Suspensions of Gold Salts.—Rossel reproduces a roentgenogram which shows small, well circumscribed spots of great density on both sides of the pelvis, at the level of the iliac crest. These spots were explained when the patient recalled that two years before she had received intramuscular injections of an oil suspension of calcium aurothioglycolate. The injections had been made into the gluteal region and the patient had received no other injections into this region; it cannot be doubted that the small spots correspond to the oil droplets of gold salts. What makes the case especially noteworthy is the long persistence of the oil depots—two years—and the local tolerance. The oil suspension of calcium aurothioglycolate seemed to be encysted like grains of granulated metal. The author thinks that this case is probably far from being unique and that it might explain why complications seem much less frequent with oil suspensions than with aqueous solutions of gold salts. In numerous cases this is probably due to the total or almost total absence of absorption in the case of the oil suspensions. This in turn raises the question of the therapeutic efficacy. The author concludes that the problematic advantages of the oil suspensions of gold salts do not counterbalance the grave dangers which may appear even long after the treatment.

47: 1649-1672 (Dec. 20-23) 1939

*Endogenic Origin of Carbon Monoxide in Blood. M. Loeper and E. Gilbrin.—p. 1649.
New Chapter on Hygiene of Habitation or Living Conditions in the Shelters. Cot and Genaud.—p. 1650.
Antityphoid Vaccination by Typhoid-Endo-Anatoxin: Application and Results (1923 to 1938). E. Grasset.—p. 1653.
Disturbances of Transit of Secretions in Principal Biliopancreatic Passage: Cholecystostomy as Diagnostic Aid. De Haven, Godart and Helman.—p. 1656.
Rarity of Neurosyphilis in Prostitutes. Boisseau, Spinetta, Druelle and Durandy.—p. 1658.
Clinical Utilization and Therapeutic Results of Gonadotropic Substance. R. Contamin and F. Leraillez.—p. 1660.

Endogenic Origin of Carbon Monoxide in Blood.—Loeper and Gilbrin investigated the carbon monoxide content in various types of anemia. In a case of hemogenic anemia and in four cases of cancerous anemia the value was increased. It was increased also in several cases of polyglobulism in respiratory disturbances, in alcoholic cirrhoses, in a case of acute polyarthritis, in cases of epilepsy, in a case in which suicide had been attempted by means of barbital, and in cases of diabetes and oxalemia. However, the authors emphasize that the carbon monoxide content of the blood is increased in only some of the cases. Because of the absence of exogenic causes, the authors believe that the increased carbon monoxide content results from disturbances in the tissue metabolism. Carbon monoxide is a product of the incomplete combustion of substances rich in carbon. The fact that an increased carbon monoxide content of the blood is encountered in subjects with pulmonary or circulatory disorders confirms this hypothesis. The substances which more than others can give rise to carbon monoxide are the glucides. After reviewing experimental studies on this problem, the authors say that they are in accord with the theory which ascribes the excess of carbon monoxide to a disturbance in the metabolism of the glucides. The frequency of an excessive carbon monoxide content in the blood of patients with diabetes supports this hypothesis.

Schweizerische medizinische Wochenschrift, Basel

69: 1321-1344 (Dec. 30) 1939. Partial Index

Mineral Metabolism and Mercury Diuresis. G. Schönholzer.—p. 1321.
Treatment of Goat. T. Schaeppi.—p. 1326.
*Casuistic Contribution to Treatment of Tabetic Crises: Insulin in Control of Lancinating Pains. H. Binswanger.—p. 1327.
Can Otosclerosis be Influenced by Vitamins? M. Baer.—p. 1328.
Improved Resorption of Vitamin A. H. Minibeck.—p. 1332.
Beta-Phenyl Alkylamine in Treatment of Nocturnal Enuresis. S. Muntner.—p. 1333.

Insulin in Tabetic Crises.—Binswanger reports observations on a patient with severe tabetic crises, in whom only fever therapy was effective. However, the effects of the fever therapy were of short duration. Insulin shock therapy was resorted to and following this the tabetic crises subsided for a time. When the pains recurred it was decided to try to counteract the crises by a "weakened" administration of insulin. It was found to be sufficient for the hypoglycemia to produce a slight somnolence and profuse sweating. The insulin should be extended over a period of from two to three weeks and should be begun when the tabetic pains have been absent for several days, for attacks of lancinating pains, persisting for several days, apparently cannot be broken off by insulin therapy. The insulin treatment improves the general condition and puts the patient into a euphoric mood. If insulin should prove effective in other cases of tabes with lancinating pains, it would be a distinct advancement in the treatment of painful tabetic crises.

Settimana Medica, Palermo

27: 1353-1378 (Nov. 23) 1939. Partial Index

*Staphylococcic Toxoid in Treatment of Staphylococcic Infections. P. Ritossa and G. Polistina.—p. 1362.

Toxoid in Staphylococcic Infection.—Ritossa and Polistina resorted to staphylococcic toxoid in seventy-six cases of cutaneous and surgical staphylococcic infections (furuncles, abscesses, infected sores, infected wounds and osteomyelitis) or staphylococcic septicemia. The authors used toxoid with an antigenic value which corresponded to 16 staphylococcus units

for each cubic centimeter of the preparation. The presence or absence of allergy was ascertained by subcutaneous injection of 0.1 cc. of staphylococcic toxoid. In the absence of allergy the treatment consisted of five subcutaneous injections at intervals of five days in increasing doses of 0.5, 1, 1.5 and 2 cc. of toxoid up to a total dose of 5 cc. for the entire treatment. In rare cases the treatment was repeated. It was administered alone or in association with surgical operation, according to indications. The treatment was well tolerated. It rapidly controls local and general staphylococcic infections. In surgical infections it rapidly accelerates the processes of suppuration, detersion and healing of infected tissues or bone, after the operation. Septicemia is rapidly controlled. The author advises the treatment in the various forms of cutaneous and surgical staphylococcic infections and in general staphylococcic septicemia.

Boletin de la Asociacion Médica de Puerto Rico

32: 1-34 (Jan.) 1940. Partial Index

Inversion of Uterus Post Partum. L. A. Balasquide and W. R. Gelpi. —p. 3.
*Acute Mesenteric Lymphadenitis. J. Noya Benitez.—p. 8.

Acute Mesenteric Lymphadenitis.—Noya Benitez observed nine children ranging in age from 5 to 12 years who were suffering from acute mesenteric lymphadenitis. The patients reported an attack of cold and cough for a few days preceding the onset of acute abdominal pain which developed in association with nausea, vomiting, fever and tenderness and muscular resistance at the right lower quadrant. They had a history of similar recurrent and subacute attacks in the past. Leukocytosis existed in all cases. Appendectomy was performed during the first twelve hours after the patients entered the hospital. Acute appendicitis coexisted with acute mesenteric lymphadenitis in three of the cases. In all cases appendectomy caused the symptoms of acute mesenteric lymphadenitis to subside and controlled the attacks, and the results appear to be permanent. The author found it difficult to differentiate between acute appendicitis and acute mesenteric lymphadenitis. The two conditions frequently coexist. The attacks of acute mesenteric lymphadenitis are controlled by appendectomy. He concludes that immediate appendectomy is the proper treatment of acute mesenteric lymphadenitis, whether or not the disease coexists with acute appendicitis.

Archiv für Kinderheilkunde, Stuttgart

118: 113-208 (Dec. 19) 1939. Partial Index

Monocytic and Myeloid Leukemic Reaction in Severe Fibrinonecrotizing Stomatitis in Children. E. Krüger.—p. 113.
Estimation of Circulation in Young Persons. H. Rieger.—p. 123.
Old and New Methods of Treatment in Gonorrheal Vulvovaginitis in Children. H. Nagell.—p. 133.
Results of High Altitude Flight in Children with Whooping Cough. Brigitte Kujath.—p. 140.
*Disturbances in Growth of Bones Following Chronic Renal Changes. S. Werner.—p. 145.
Experimental Investigations in So-Called Renal Diabetes. R. Kortum.—p. 162.
Vitamin B_1 Content of Urine in Postdiphtheric Paralysis. H. Reinhard and K. Schwartzer.—p. 192.

Disturbances in Bone Growth Following Renal Changes.—Werner describes observations on a child, aged 1 year, who had a severe renal disorder presenting the aspects of chronic pyuria. The child was under observation for about a year, during which time disturbances in growth and osseous changes developed. The clinical aspects seemed to place the disorder in the group of renal rickets (Parsons' type III). Necropsy revealed a severe chronic nephritis, hyperplasia of the parathyroids and, in the bones, osteitis fibrosa generalisata (Recklinghausen). The author raises the question whether some cases of renal rickets actually are true rickets or whether a disease entity exists that develops from the metabolic disturbance, which in turn is caused by the impaired renal function and by way of the hyperplasia of the parathyroids and which becomes manifest either in the form of rachitis-like growth disturbances in the bones or in the form of osteitis fibrosa generalisata. He suggests that cases of rickets which prove resistant to vitamins might perhaps find their explanation in this manner. The metabolic disorder or the parathyroid hyperplasia would not necessarily have to be of nephrogenic origin.

Fortschritte a. d. Gebiete der Röntgenstrahlen, Leipzig

60: 391-472 (Dec.) 1939. Partial Index

Accuracy of Roentgenologic Diagnosis in Diseases of Stomach and Duodenum. H. Keutner.—p. 421.
*Localization of Foreign Bodies in Human Organism by Means of Simultaneous Double X-Ray Exposure. T. Shiga.—p. 442.
*Vertebral Column and Eunuchoidism. A. G. H. Lindgren.—p. 448.
New Picture Field Diaphragm. K. Gund.—p. 457

Localization of Foreign Bodies by Double X-Ray Exposure.—Shiga says that foreign bodies of hard substances deep within the body can be localized exactly by his method of simultaneous double x-ray exposure. The theoretical foundation of this method is almost like that of the shifting methods of exposure devised by other investigators; however, the author adds a further theoretical development and geometrical explanations. The error of experimental observation totals 0.95 per cent and amounts to only 1 or 2 mm. of the true length of the object. This method of double exposure by means of parallel x-ray tubes can be used not only for the localization of foreign bodies but also in the diagnosis of digestive, urogenital and orthopedic disorders. Furthermore, it can be used for industrial purposes, such as for the inspection of cast-metal work.

Vertebral Column and Eunuchoidism.—Lindgren reviews two cases of eunuchoidism, one concerning a woman, the other one a man. In the woman a roentgenogram of the tubular bones made at the age of 32 had revealed several open epiphyses, but at the necropsy ten years later they were found closed. In the male patient earlier roentgenograms were not available. In the woman the author gave his attention chiefly to the vertebral column. He observed among other changes irregular ossification of the epiphysial plates; that is, conditions indicative of inhibited development of the vertebral bodies. He thinks that this inhibition is probably the result of gonadal hypofunction. However, he does not think that the inhibited ossification produced a noticeable increase in the size of the vertebrae. In eunuchoidism the extended growth of the long tubular bones, as the result of the persistence of the epiphyses, contrasts with that of the vertebral column and this explains the typical eunuchoid proportions of the body. This accords with Schmorl's opinion, according to which the epiphysial plates of the vertebrae cannot be compared with the epiphyses in the long bones and do not play a part in the longitudinal growth of the vertebral bodies. In the reported case it is noteworthy that the vertebral column still exhibited signs of continuous growth at a time at which growth in the long bones was already completed. The author concludes that in eunuchoidism, probably as a result of gonadal insufficiency, the growth of the long tubular bones progresses unchecked. The epiphysial plates of the vertebrae, although they do not have the same functional significance as have the epiphyses of the long bones, apparently are likewise subject to incretory regulation, for in the reported case the gonadal hypofunction resulted in an inhibition of their ossification. The author recommends studies on the epiphysial plates of the vertebrae in other endocrine disorders.

Geburtshilfe und Frauenheilkunde, Leipzig

1: 727-784 (Dec.) 1939

Functional Disturbances of Ovarial Follicle Formation, Especially "Follicle Persistence." R. Schröder.—p. 727.
Disorders of Gallbladder in Pregnancy. H. Vignes.—p. 743.
X-Ray Diagnosis of Early Pregnancy. M. Knorr.—p. 748.
*Difficulties of Clinical Diagnosis in Advanced and Full Term Extra-Uterine Pregnancies. T. Pütz.—p. 755.
Effect of Diethylstilbesterol on Women. H. Rauscher.—p. 764.

Advanced and Full Term Extra-Uterine Pregnancies.—Pütz reports three cases of extra-uterine pregnancy that exemplify the diagnostic difficulties encountered in ectopic gestation. He stresses the need of observing features suggestive of extra-uterine pregnancy. Among these are poor physical condition, an intact portio at the end of pregnancy, exceptionally vigorous fetal movements that cause no pain, pain during the second half of pregnancy (not always present), Cullen's sign, and the distinct palpability of fetal parts under the abdominal wall. He thinks that extra-uterine pregnancies are due for the most part to inflammatory conditions in the oviducts or pelvic organs of maturer women who either have borne no children or have undergone periods of sterility after previous parity.

Klinische Monatsbl. f. Augenheilkunde, Stuttgart

102: 561-685 (Dec.) 1939. Partial Index

Treatment of Detachment of Retina by Electrolysis. H. Machemer.—p. 561.
*New Thoughts on Pathogenesis of Myopia. K. Lindner.—p. 582.
Cyclodiathermy Puncture in Glaucoma. A. Vogt.—p. 591.
Important and Simple Aid in Magnet Extraction of Splinter from Anterior Chamber. W. Comberg.—p. 600.
Fundus Oculi in Three Forms of Familial Idiocy. K. Schaffer.—p. 602.
Problem of Primary Gliomas of Optic Nerve. F. Wagner.—p. 606.
*Observations on So-Called Lactation Neuritis. M. Glees.—p. 615.

Pathogenesis of Myopia.—Lindner cites evidence which suggests that only that type of close work promotes myopia which involves an intense metabolism of the retina. Reading, with its continuous change of pictures, results in much greater metabolism than does looking at the same picture. The greater exertion of the visual organ is accompanied by a greater serous perfusion of the choroid. Watchmakers are almost never myopic; the pictures which they observe remain constant and the metabolism of the retina is consequently less intense than is the case in reading. Sewing likewise calls for less exertion of the retina than does reading and this explains the low percentage of myopia among seamstresses. To prevent myopia or arrest its progress, the work of the retina must be made as easy as possible. Even slight astigmatic defects should be carefully corrected; the best possible illumination should be provided; prolonged close work should be interrupted by frequent recesses, and venous stasis in the region of the head, such as is brought on by a bent-over posture, should be avoided.

So-Called Lactation Neuritis.—Glees reviews the symptomatology. He says that during the puerperium or shortly thereafter there may develop, accompanied by headaches, an impairment of the visual acuity of one or both eyes. Examination discloses optic neuritis, peripheral contractions of the visual field and central scotomas. Occasionally the bulbi are sensitive to pressure and the movements of the eyes may be painful. The disorder subsides in the course of weeks or months and the visual acuity is largely restored. Thus the prognosis is relatively favorable. The etiology is unknown. He reports three cases of lactation neuritis observed at his clinic during 1938. In the first case the disorder developed eleven weeks after delivery and five weeks after the child had been weaned. In the second case it appeared four weeks and in the third case six weeks after delivery; both of the women were still nursing their infants when the eye disorder developed. All cases were characterized by severe changes in the papilla and in two cases there existed vascular changes and retinal edema in the surroundings of the papilla and along the large vessels. In view of the fact that vascular changes, particularly contraction of the arteries, have been observed also by others who have studied lactation neuritis, the author concludes that vascular changes play a part in the pathogenesis of this optic neuritis. To be sure, this does not explain why they appear during the period of lactation. None of the hypotheses give a satisfactory explanation and the author regards a direct connection between the disease of the optic nerve and the lactation as doubtful. He accepts as most plausible that weakening of the organism by gestation, delivery and puerperium provide the basis for some infectious impairment of the optic nerve.

Röntgenpraxis, Leipzig

11: 611-650 (Nov.) 1939. Partial Index

*Roentgenologically Visible Calcifications of Cardiac Values. D. Hoffmann.—p. 611.
Roentgen Therapy of Malignant Struma With and Without Operation. J. Haldre.—p. 615.
Case of Obliquely Contracted Osteosynostetic Pelvis (Type Naegele) with Homolateral Osteomyelitic Defect of Neck of Femur. J. H. Müller.—p. 621.
Hodgkin's Disease of Bones. J. Grauer.—p. 623.
Various Breaks in Continuity of First Rib. W. Kohlbach.—p. 626.
Congenital Deformity of Lumbar Portion of Vertebral Column. F. Meves.—p. 628.

Roentgenologically Visible Calcifications of Cardiac Valves.—Hoffmann says that there are few records of roentgenologically visible cardiac calcifications. He describes his own observations in two cases. In the first, roentgenoscopy disclosed nothing abnormal on the lungs or the diaphragm. However, a dense shadow the size of an almond was observed in the left half near the center of the heart. This shadow moved up and down and when the patient was turned the shadow could neither be separated from the heart nor even transferred into its periphery. Furthermore, inspiration did not change the position of the shadow. The regularly pulsating movement of the calcium shadow was considerably more extensive than that of the cardiac outline. During lateral exposure the shadow made an almost vertical elliptic rotation. The roentgenogram indicated that the shadow represents a calcification of the mitral valve. The roentgenologic diagnosis of calcification of the mitral value was supported by the clinical examination, which indicated a mitral stenosis and insufficiency. An endocarditis during childhood is regarded by the author as the cause of the mitral calcification. In the second case a dancing calcium shadow the size of a bean led to a more thorough examination. In view of the position of the shadow and of its dancing movements, the author assumes a calcification of the aortic valve. He thinks that a calcification of the coronary arteries can be ruled out because the movement of the shadow was more extensive than that of the edge of the heart.

Strahlentherapie, Berlin

66: 369-544 (Nov. 30) 1939. Partial Index

Indications for Irradiation of Hypophysis, Thyroid and Adrenals. A. Schittenhelm.—p. 373.
Significance of Heredity in Pathogenesis of Cancer. B. Fischer-Wasels.—p. 428.
Statistics on Carcinomas of Female Genitalia as Basis for Systematic Treatment of Cancer. W. Hagedorn.—p. 448.
Treatment of Glandular Metastases in Carcinoma of Lung. W. Pfeifer.—p. 468.
Possibility of Juxtatumoral or Intratumoral Ray Therapy. G. Kohlmann and L. Brat.—p. 474.
Specific Actions of Ultrashort Waves: Thermic, Athermic and Specific Action of Ultrashort Waves. M. Theis.—p. 494.
*Artificial General Irradiation with Ultravitalux Lamps in Cases of Tuberculosis of the Skin During Winter 1938-1939. W. Küllmer, L. Peukert and W. Schultze.—p. 515.
New Water Cooled Mercury Vapor Quartz Lamp for Contact Irradiations. H. Lüsebrink and L. Peukert.—p. 525.

General Irradiation in Cutaneous Tuberculosis.—Küllmer and his associates state that, at the Giessen sanatorium for patients with lupus, observations extending over twenty-five years have demonstrated that systematic and correctly apportioned heliotherapy is the most important factor in the successful treatment of cutaneous tuberculosis. Attempts were made to provide the lupus patients during the sunless periods with a substitute for sunlight. The authors describe the various types of therapeutic lamps that were used. It was their aim to determine what type of radiation was necessary to produce a certain biologic effect. They describe the method used for general irradiations of 150 patients during the winter 1938-1939. The long ultraviolet waves were of great value in the treatment of patients in whom the cutaneous tuberculosis is complicated by pulmonary lesions. They dispensed with the strong irritative action which the short ultraviolet rays exert on the skin. Their observations correspond with the fact that sun baths during the morning hours are better for patients with cutaneous tuberculosis than are sun baths when the sun stands highest, that is, when the wavelengths are shorter; furthermore, the favorable therapeutic results obtained during spring in the high mountains tend to add further proof. They are convinced that in cases of cutaneous tuberculosis the weakening of the short ultraviolet waves is advantageous. They hope that a type of radiation may be found that can be used in cases of active pulmonary processes.

Wiener klinische Wochenschrift, Vienna

52: 1133-1152 (Dec. 22) 1939

Mediastinitis. E. Wessely.—p. 1133.
*Treatment of Narcotic Poisoning. H. Kutschera-Aichbergen.—p. 1135.
X-Ray Examination of Pulmonary Suppurations. J. von Palugyay.—p. 1137.
Surgical Intervention in Dermatologic Cosmetics and Transplantations. S. Tappeiner.—p. 1140.

Metrazol Therapy in Narcotic Poisoning.—According to Kutschera-Aichbergen, victims of barbituric acid poisoning may die because the dosage of the drugs usually administered is insufficient to rouse them from their coma and thus allows postnarcotic pneumonia to develop. He was successful in forcing

comatose persons into consciousness by persistent administration of unusually high doses of from 5 to 10 cc. of metrazol at hourly intervals without inducing convulsions, though the total dosage was as high as 110 cc. within ten hours. In two cases reported from a larger number, the author was able to restore to consciousness and life two women, aged 37 and 31, who had attempted suicide by means of barbital and illuminating gas, by injections of 10 cc. of metrazol given intravenously every hour. In the one case supplementary measures consisted of intramuscular injections of 10 cc. of metrazol, carbon dioxide inhalations (seven an hour) and a subcutaneous injection of physiologic solution of sodium chloride (2 liters). Nourishment was supplied by a nasal instillator in the form of sugar solution and black coffee. The author stresses the necessity of large doses of metrazol in intoxication from barbituric acid derivatives, the therapeutic value of carbon dioxide inhalation and the need of nourishing comatose patients who cannot be roused on the first day. He cautions against the use of high doses in cases of self poisoning by other means. Barbituric acid and its derivatives, he found, showed a tolerance of metrazol far exceeding the usual tolerance limit, without provoking spasms.

Zeitschrift f. d. ges. experimentelle Medizin, Berlin

106: 597-775 (Nov. 3) 1939. Partial Index

Relations of Reticulo-Endothelium to Metabolism of Nonhemoglobic Iron. A. Vannotti and A. Imholz.—p. 597.
Experimental Investigations on Metabolic Actions of Caffeine. E. Danopoulos.—p. 612.
Carbohydrate Tolerance Test for Examination of Normal and Defective Carbohydrate Metabolism. (Addison's Disease, Acromegaly and Diabetes Mellitus.) G. Stötter.—p. 622.
*Physiologic Examinations and Observations on Persons Working in High Atmospheric Pressure (Caisson Workers). W. Marquort and J. Rietz.—p. 684.
Postmortem Decomposition of Hepatic Glycogen Following Its Artificial Increase. H. Ziemke.—p. 704.
Influence of Riboflavin on Inhibition of Resorption of Carbohydrates by Phlorhizin. H. Robbers and O. Westenhoeffer.—p. 714.
Experimental Investigation on Hypochloremia of Hormonal Origin: Pathogenesis of So-Called Hypochloremic Azotemia. P. Larizza.—p. 719.
Allergic Pneumonia and Vitamin C. G. Walther.—p. 748.

Physiologic Observations on Caisson Workers.—Marquort and Rietz observed caisson workers exposed to pressures of 3.75 atmospheres. They found that such pressures do not cause an increase in the basal metabolism during the time the worker is in the caisson or as the result of the daily work under such high atmospheric pressures. Observations on the pulmonary ventilation revealed a greatly increased respiratory volume with a simultaneous decrease in frequency and thereby corroborated the assumption of a deepened respiration during the time the worker is in the caisson. However, there was no increase in the vital capacity during the stay in the caisson or as the result of several months' work in it. Studies on the circulation during the stay under excess pressure revealed a decrease in the frequency of the pulsation in spite of hard physical labor. Simultaneously there existed a tendency toward decrease in blood pressure. Electrocardiographic records made while the workers were under excess pressure revealed a positional change of the heart in the form of a turn of the sagittal axis, a change that is indicative of a lowering of the diaphragm. There were no changes in the condition of the stimulus or in the contraction. Furthermore, caisson workers, even those who had done this type of work for years, were free from electrocardiographic changes. The red blood pictures of caisson workers revealed a tendency to a decrease in erythrocytic values during the stay in the caisson, but there were individual differences in the severity. Following a return to ordinary atmospheric pressure, normal erythrocytic values were found and there were no signs that anemia developed after daily work in the caisson. The refractometric blood protein values, which were determined in order to clarify the concentration of the blood, were increased under excess atmospheric pressure in the majority of cases. Thus there is no foundation for the assumption of a hydremia. The observed increases in the protein values were the result of the muscular exertion. The blood sedimentations show a normal course. The fluctuations in the sodium chloride and the bilirubin values likewise are within the limits of the physiologic norm during stay in the caisson.

Med. v. d. Dienst d. Volksgez. in Nederl.-Indië, Batavia

28: 283-420 (No. 4) 1939. Partial Index

Composition of Diet of the Chinese in Batavia. L. W. J. Holleman, D. R. Koolhaas and J. A. Nijholt.—p. 306.
Epidemic Cholera in South Celebes Caused by Vibrio El Tor. C. E. de Moor.—p. 320.
Complement Fixation in Diagnosis of Leptospirosis in the Netherland East Indies. W. A. Collier and A. Mochtar.—p. 356.
Blood Grouping in Nias. J. H. Maasland.—p. 373.
Hyrcanus Problem in the Netherland East Indies, with Description of a Widespread Malaria Carrying Variety: Anopheles Hyrcanus X. W. G. Venhuis.—p. 376.
*Combined (Simultaneous) Immunization Against Tetanus. L. Otten and I. P. Hennemann.—p. 391.

Immunization Against Tetanus.—Otten and Hennemann cite investigations which show that the development of active immunity against tetanus is interfered with by a single as well as by a repeated serum injection and that immunity is not always detectable as late as from thirty-one to forty-one days after the first injection of formaldehyde toxoid. They decided to solve this problem experimentally by determining the antitoxic values during the first six weeks after the commencement of immunization. They tried eight different methods. They stress the following points: 1. As in immunization against diphtheria, the development of active immunity against tetanus by formaldehyde toxoid appears to be inhibited by the presence of a passive immunity. 2. Experimental research in guinea pigs proves that the third to the sixth week constitutes the critical period, the passive immunity becoming exhausted while active immunity has still not reached the required level. 3. With three injections of formaldehyde toxoid at ten day intervals, the first two followed by injection of serum after twenty-four hours, this gap can be bridged, the passive immunity passing into the active without interruption. 4. The inhibitory action of the passive immunity has to be attributed to the antitoxin itself, whether of heterologous or of homologous origin. 5. Apart from this specific factor, heterologous serum, by its foreign protein content, provides a nonspecific factor, either inhibiting directly or, on repeated administration, indirectly by interference of a protein antiprotein reaction. 6. As the course of the response to combined immunization in man has not been studied with sufficient accuracy up to now, this method should not be applied universally until a systematic research, pursued over the whole critical period of the third to the sixth week, has proved that the antitoxin can indeed be maintained continuously at a satisfactory level. 7. Even if this should appear practicable, systematic active immunization deserves recommendation for all occupations particularly exposed to the risks of tetanus infection and above all for military forces.

Acta Orthopaedica Scandinavica, Copenhagen

10: 221-402 (Nos. 3-4) 1939. Partial Index

Arthrodesis of Shoulder Joint in Paralysis of Deltoid. G. Asplund.—p. 248.
Patellar Chondromalacia. H. Hinricsson.—p. 312.
*Relation Between Congenital Subluxation of Hip and Arthritis Deformans: Roentgenologic Study. G. Wiberg.—p. 351.
Renal Rickets. T. Gordh.—p. 376.

Atrophic Arthritis Secondary to Congenital Subluxation of Hip.—Wiberg explores roentgenologically the relation of congenital subluxation of the hip to the evolution of atrophic arthritis in eighteen cases in which x-ray examinations could be repeated in the course of from fifteen to thirty years. The successive film evidence for three of the cases is presented. According to the author, sclerosis in the roof of the socket seems to be the first sign of arthritis and appears before there are any demonstrable changes in the head, but after these have occurred subsequent changes are more rapid in this region. Destruction of the cartilage need not precede sclerosis. However, the author has observed no case in which there was pronounced cartilage destruction in the absence of sclerosis. The presence of a double floor in the socket cannot be established in all cases of subluxation. After the process of arthritis has set in, beak-formed osteophytes occasionally develop on the lateral margin of the roof but fail to offer structural support. Capital deposits seen in the film were always situated in the lower part of the head and appear in the film as parrot beaks. The resultant form of the head depends to the highest degree on its initial form.